COAL AGE

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Assigned Cars for Railroad Fuel

"THEY never come back." Well-proved words that are rightly applied to many a dethroned champion who tried. Nevertheless, they do try, for it is hard to realize that the old order is gone. Report has it that another of the dethroned will try to stage a come-back. This ex-hero is the notorious assigned car for railroad fuel.

He used to be the champion bruiser for the purchasing agents of the railroads when they went out to buy coal. The coal producer was a jelly when old A. C. finished with him. Prices were wrecked, profits abandoned. Discrimination was the established practice. Some mines ran overtime on unprofitable railroad orders; other mines worked only odd days or parts of days for lack of cars. In consequence the public paid more for its coal; miners were idle; they got in debt; they and their families starved; they were ripe for strikes and revolution against such conditions.

The whole system was viciously unfair and unjust. But it meant cheap railroad fuel and had never been decided illegal. Therefore, the purchasing agent and the railroad president were satisfied and happy. Bankrupt coal operators, idle mine workers, hungry women and babies, festering revolt in the coal fields never troubled their bland serenity. Nor did any unwelcome ideas of fair play and justice ever disturb their case-hardened consciences.

Then came the war and the Railroad Administration. John Skelton Williams, head of the Railroad Administration's purchases, had in his hands the purchase of 150,000,000 tons of coal for railroad fuel. He also had the use of the entire railroad transportation system of the country. He likewise had the full authority of the government. No man in the history of the world ever had such power in any market. And he announced his intention to use all that economic and legal power to the limit in order to buy coal cheap.

He proposed to use the assigned car as his main weapon and to disregard government prices, government plans for the war distribution of coal, the production of ships, munitions, or other war supplies, principles of fair dealing and any other trifling objections that might be urged against his high and mighty purposes. Director General McAdoo

found it easy to support him while the fawning satellites under him walked softly in his august presence and made ready to execute his unholy plans in reverent admiration, for what he proposed went far beyond anything that any mere human purchasing agent had ever dreamed of accomplishing.

But the coal men in the Fuel Administration condemned the whole scheme unreservedly. They insisted that the Railroad Administration should buy its coal like any other purchaser and should distribute the cars equally to all mines. They appealed to the Fuel Administrator. Dr. Garfield took one good look at Mr. Williams' scheme, saw its utter iniquity, and when he was unable to persuade McAdoo to kill it, went to the President. The President also got his feet down on the solid ground of right and justice and gave orders that there should be no assigned cars under the United States Railroad Administration but that the distribution of cars should be equal among all mines. The benefit to the public was made instantly apparent in a $50,000,000 reduction in the nation's coal bill.

Now that the roads are returned to private management, it is reported that some of them will again use assigned cars in the purchase of their railroad coal; in other words, pay for the coal partly in money and partly in cars for the loading of coal. Meantime, the new railroad bill says that in times of car shortage every car furnished must be counted against the mine, and the failure to so count every car is penalized. Railroad men may try to twist that language into something else, but evidently Congress has meant to end discriminatory distribution of coal cars.

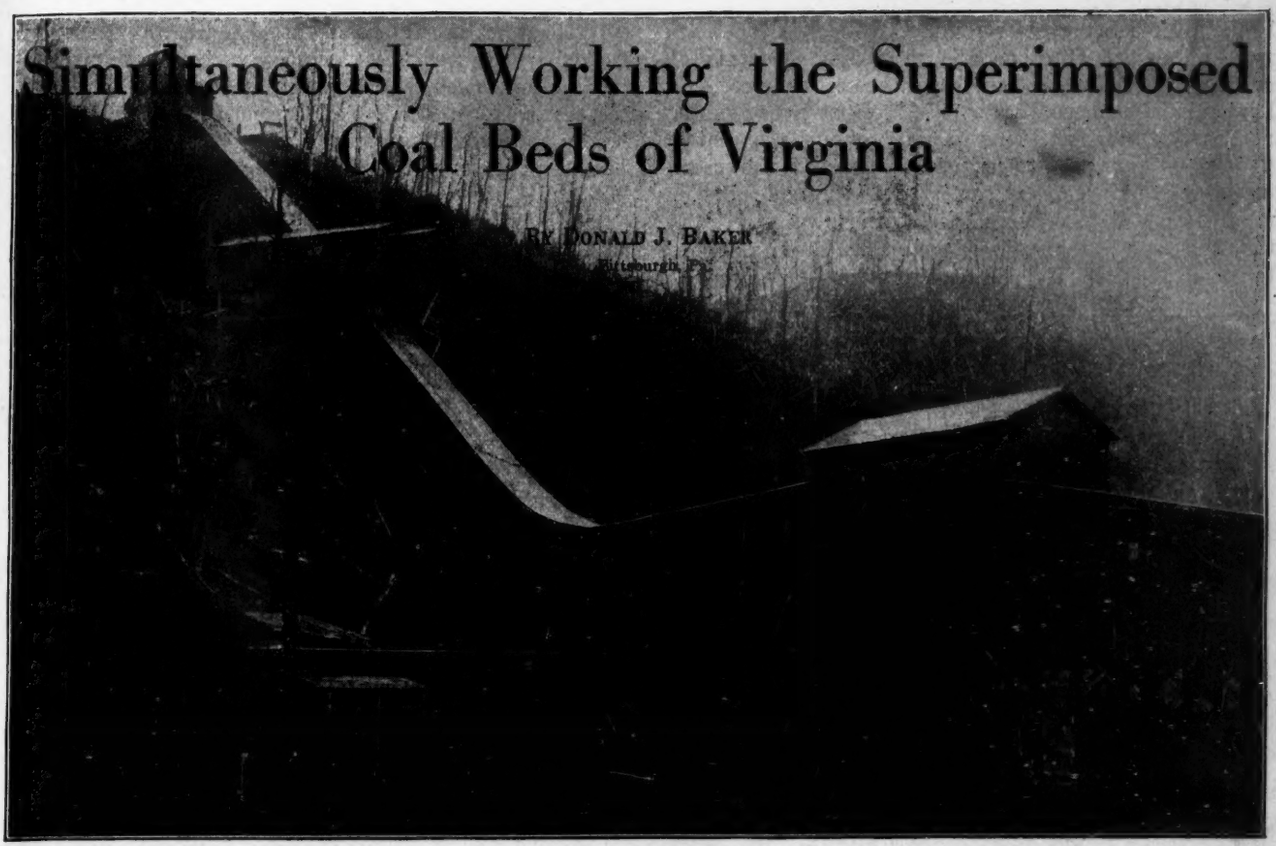
The wise railroad president will heed the plain public condemnation of an old evil and abuse and will not even waste time speculating on whether he can somehow evade the statute and still avoid heavy penalties and damages. The unwise may try it, but the finish of his effort will be certain. In an emergency there may be some ground for the special placing of some cars for fuel loading at available mines for a day or two, but there is neither reason, excuse nor legal warrant any longer for going out and deliberately making discriminatory car supply a consideration in a contract providing for fuel deliveries throughout a whole year.

The coal producer has as much need of taking to heart the lesson of the President's decision as has the railroad man. The coal operator also knows now that the assigned car is a branded convict. The disapproval and condemnation of the industry will rightfully fall upon the producer or jobber who becomes a party to any railroad business carrying assigned cars with it. Moreover, the public will not placidly submit to the added cost of its coal which the re-establishment of the old practice would entail.

In brief, it will be far better for all concerned to recognize the fact that this old abuse is done for. Neither the coal industry nor the public will tolerate its return. They will rub the old truth into avaricious doubters good and hard that "they never come back," if said doubters go ahead with their plans to try turning the moral and economic progress of America backward.

Simultaneously Working the Superimposed Coal Beds of Virginia

By Donald J. Baker
Pittsburgh, Pa.



VIRGINIA as a state has more to boast of than merely being the "Mother of Presidents," producing the largest peanut crop and being second in tobacco growing. In Wise County the Cumberland Mountains attain their greatest height and contain the most valuable and numerous coal deposits found within the state borders. It is little wonder that Wise County has become the scene of numerous coal operations. Mining conditions here exact a greater exercise of engineering skill than is commonly necessary in districts farther north. The compensating feature, however, is that the coal beds are relatively thick. Furthermore, the coal is clean, requires no extensive preparation and is nearly free from gas. The roof is usually a firm sandstone that resists the disintegrating action of the air.

Output from four operations in as many different beds is fed to one conveyor and prepared in one tipple. One of these mines is regularly inspected on horseback.

One of the leading operators of Wise County is the Blackwood Coal & Coke Co., whose main offices are at Blackwood about 5 miles west of Norton. This company was organized in 1903 and operations were started the same year. The mines of the company are located at Blackwood, Pardee and Roaring Fork, all of which are within a radius of 12 miles of each other and located in Big Black Mountain; one of the highest and most impressive elevations of the Cumberland chain. The mountain itself is the dividing line between Virginia and Kentucky and is in truth a fitting monument to separate two states whose picturesque scenery must be seen to be appreciated.

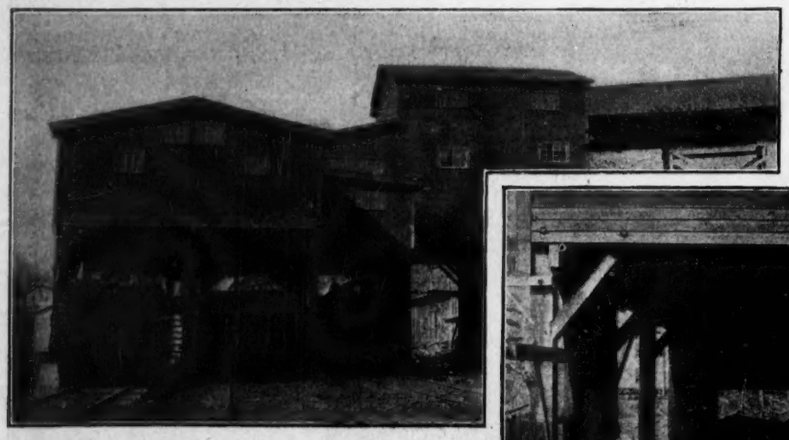
The coal deposit that is receiving the most attention in the development work of the Blackwood Coal & Coke Co. is the Parsons. This is sometimes known as the Pardee or Cornett bed. It is 2,740 ft. above sea level and is perhaps the thickest known bed of hard, i.e., non-friable bituminous coal in the world. A general thickness of 10 ft. 4 in. is averaged throughout the properties of the Blackwood company. The coal is practically free from impurities and contains no binders. An analysis will show the following constituents: moisture, 0.87 per cent; volatile matter, 38.92; fixed carbon, 56.41; ash, 4.67; sulphur, 0.716 per cent. The The heat content is 14,907 and the fusion point of the ash is high averaging approximately 2,710 deg. F.

The mines at Pardee are most picturesque and interesting because they are so entirely different from the ordinary. In the first place, the coal is unusually thick and maintains its height so evenly that the mine is inspected on horseback. The mountain roads are so steep and rocky that they forbid the use of an automobile in gaining access to the drift mouth. Accordingly C. J. Creveling, general superintendent of the Blackwood company, when he would inspect the mine in the Parsons bed, vaults into the saddle and never has occasion to withdraw his feet from the stirrups until he has visited the last room.

The mine is developed on the room-and-pillar system and certain inspectors of, say, the Miller bed mines of Somerset County, Pa., would indeed think they had reached the ultimate—the Utopian coal mines—if they could make their rounds of inspection on horseback. The same methods are employed by the firebosses making their early morning tours. They are indeed "Knights of the Black Diamond" in every sense of the phrase.

This pleasing and alluring feature is, however, partially eclipsed by reason of the mine being in the nearly inaccessible portion of the Cumberland Mountain region.

While a few labor problems have to be met in the Blackwood mines this freedom is largely offset by most difficult transportation problems which make the question of how to handle the coal after it is brought to the surface not easily solvable. This alone keeps the operator's path from being a velvety one. During the recent nation-wide strike of miners, the Blackwood company never lost a day. Wise miners in this mine of Wise County knew when they were well taken care of. Miners to work this thick bed are easy to secure. Getting men to strike who work in a non-gaseous mine where the coal is over 10 ft. high and the roof so sound that posting is seldom needed, is no easier than it sounds.



END VIEW OF THE TIPPLE WHEN LOOKING FROM BELOW

Cars are here as usual dropped through the tipple by gravity.

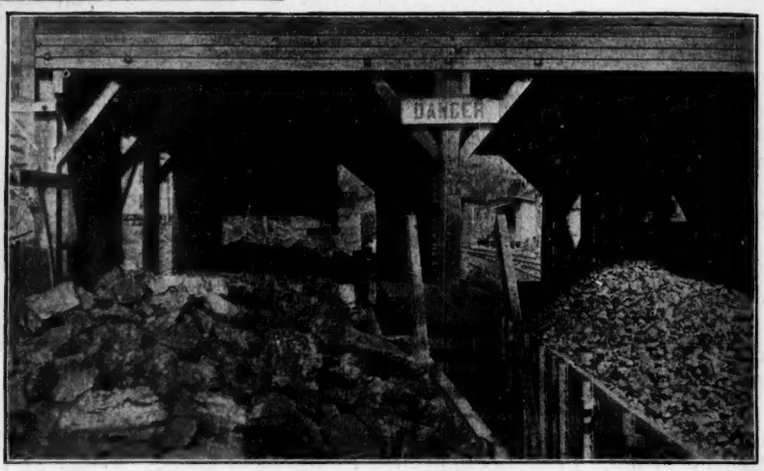
The tipple at Pardee receives the coal from four separate beds from a retarding conveyor 588 ft. long having a capacity of 300 tons per hr. The output from the Taggart or "C," the Low Splint, the Parsons and the High Splint beds all enter the one conveyor leading to the main tipple. These beds lie above each other in the order given. Two headhouses discharge the coal after it is dumped onto the conveyor. The lower headhouse collects the coal from the High Splint and Parsons beds while the upper headhouse receives the outputs from the "C" and Low Splint beds.

COAL ON THE SHAKING SCREEN

Slotted lump screen is here employed instead of the common perforated plate.

At first thought it might appear that this statement is incorrect, as the Parsons and High Splint beds lie above the other two; however, the two lower beds are worked at practically headhouse height. Furthermore, the drift entrances are so located that the above arrangement was considered the most practical.

The development in the Parsons bed is 700 ft. vertically above the tipple. This fact is unfortunately not brought out in any of the accompanying illustrations. The mine cars, which are of 120-cu.ft. capacity, are dropped down a 1,500-ft. incline in trips of three by means of a 1⅛-in. wire rope. Upon reaching the bottom, the cars are gathered by a 14-ton Jeffrey "armorplate" locomotive and hauled to the lower headhouse. At this point the cars pass over a crossover dump, from which the coal enters a receiving hopper and is finally distributed upon the retarding conveyor by a reciprocating feeder, which insures a uniform supply. This is an advantageous method.



LUMP AND EGG COAL ON CARS

Loading booms are employed for both these sizes

The conveyor is of the chain-and-scraper type and is operated by two motors—a 40-hp. machine at the upper headhouse and a 5-hp. at the lower. The upper headhouse is equipped with a kickback dump, receiving hopper and reciprocating feeder. Both headhouses as well as the tipple are of wooden construction. The tipple and retarding conveyor at Pardee were fully described in the May 1, 1919, issue of *Coal Age*.

The room-and-pillar method of working is employed in the thick bed. Main entries are driven in pairs 1350 ft. apart; each is 12 ft. wide. One is double tracked and used as a haulageway while the other is utilized as an air course. The distance between the two is 72 ft., which gives a 60-ft. pillar. Room entries are turned directly off the mains every 250 ft., this distance being the length of the rooms. The coal is then developed by the panel system with 15 rooms to the panel each located on 60-ft. centers. This allows for a pillar approximately 35 ft. thick between the rooms, which are widened from 20 to 25 ft.

The coal is undercut by 28-A Jeffrey shortwall mining machines and shot down with black powder. A knife-blade parting runs through the Parsons bed and with a conservative use of explosives, the coal will separate at this line and only half will fall. As may be seen in one of the illustrations, the upper undisturbed portion of the bed is allowed to remain in position until the lower bench has been removed for a distance of from 40 to 50 ft. The upper bench may then be brought to the floor by a small quantity of black powder.

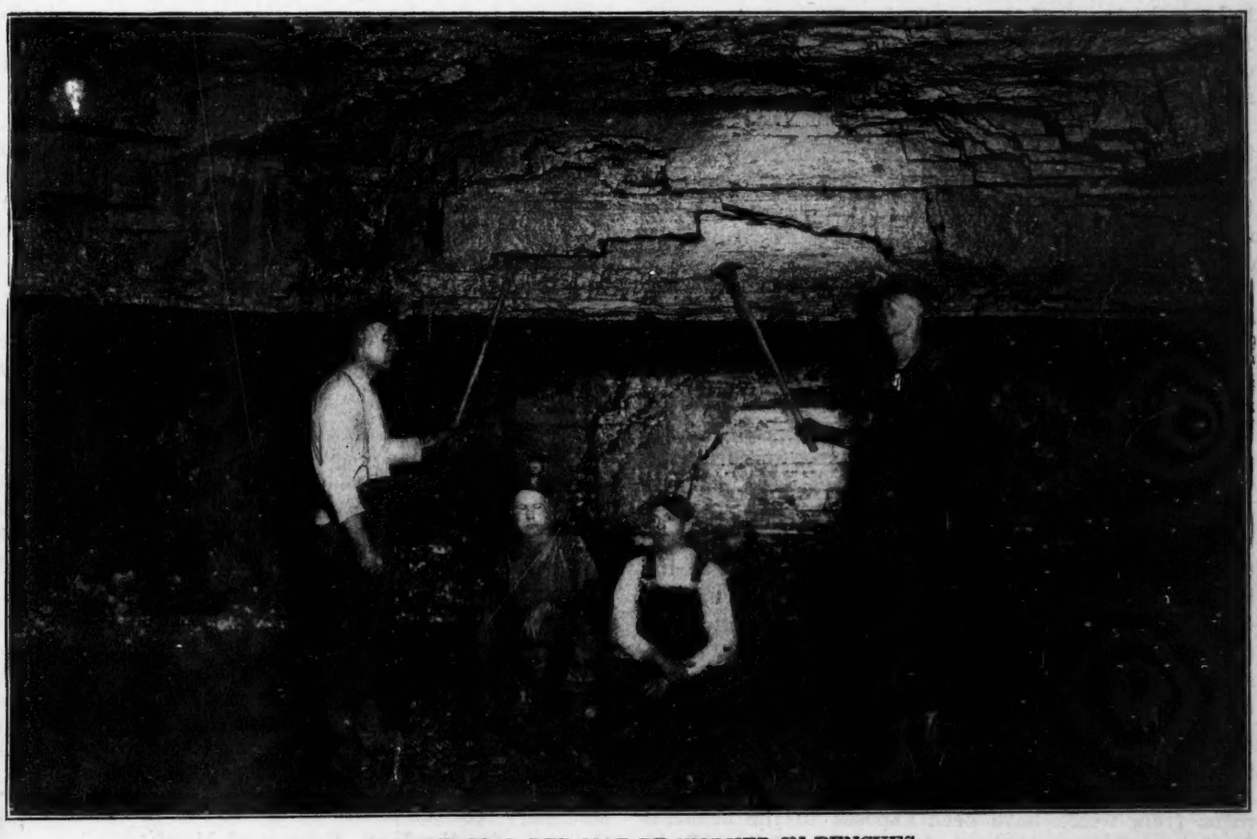
PLAYGROUND AND PART OF THE TOWN
"Growing things," both animal and vegetable, are conspicuous

The coal is harder than ordinary bituminous but is not an anthracite. Posts are seldom employed in driving a room and find only a limited use in holding up the upper portion of the bed while the lower is being removed. The room pillars are split and removed in retreat after all the rooms have been carried to their full length.

Intervals of at least 250 ft. exist between the Parsons, the Low Splint and the "C" beds. Accordingly operations in these measures may be carried on irrespective of each other, as it is considered that there is sufficient cover to protect the overlying workings. However, this does not hold true with respect to the interval between the High Splint and the Parsons beds and these are therefore worked in conjunction with each other, lest in robbing the pillars of the lower bed, operations in the upper should be interfered with and become unsafe.

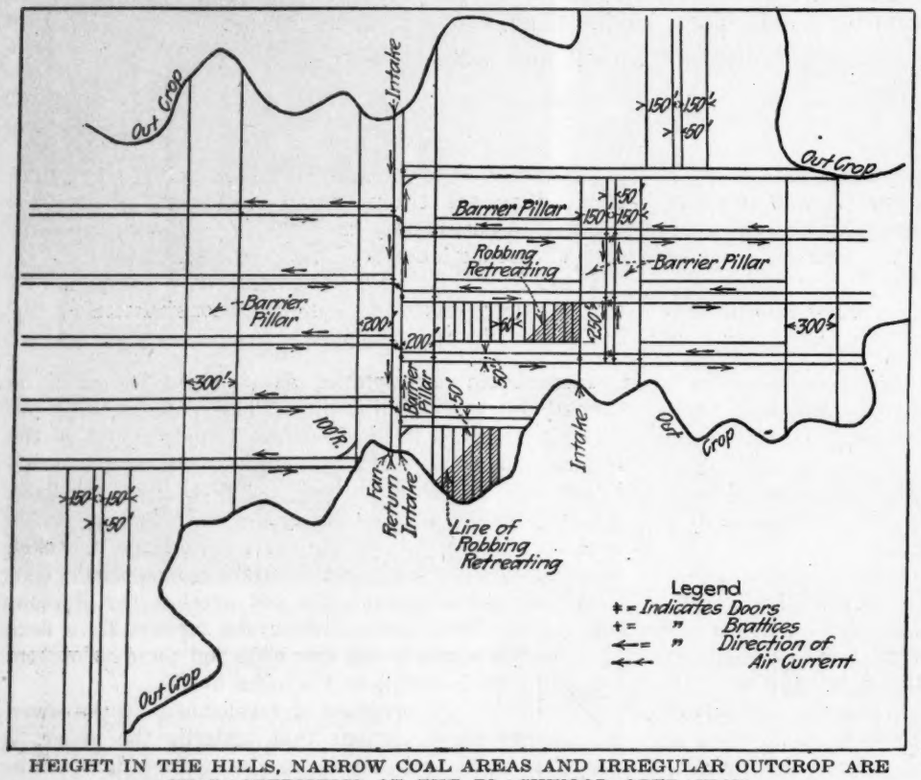
This double development, as it might be called, is carried out without difficulty. The High Splint coal, which averages 5 ft. in thickness, is only found on the highest ridges of Black Mountain. This bed is practically level and approximately 2,990 ft. above sea level. As the highest point on Black Mountain in this region is at an altitude of 3,800 ft., there is no large unbroken tract of this bed as might at first be imagined. Outcrops are numerous and the bed overlies the Parsons only in restricted areas. Accurate surveys have been made of the mines in the two beds and the development work in both is shown on the same map.

As a result, the progress of development in the lower, as regards those sections that underlie the upper, is curtailed until such a time as the room pillars in the upper bed have been removed. It is then safe to pull the pillars in the lower or underlying bed.



PARSONS COAL BED MAY BE WORKED IN BENCHES
The lower bench has here been removed for some distance leaving the upper one which stands without support

This method of working the two beds simultaneously, which is probably the only one that could be used, has one drawback, namely, that water encountered in the upper mine eventually finds its way into the lower. Thus while the drainage problems in the High Splint bed are automatically solved, the Parsons is compelled to bear the brunt of the dewatering for both measures. Fortunately, this bed is practically self-draining as it dips about 3 per cent and development has been made against the dip.



HEIGHT IN THE HILLS, NARROW COAL AREAS AND IRREGULAR OUTCROP ARE CHARACTERISTICS OF THE BLACKWOOD OPERATION

The only places where pumps are required are in those local "swags" that may be encountered in any mine. Taken all in all, therefore, topographical conditions are about as near ideal as could be hoped for when there is not sufficient cover to guarantee one bed being developed independent of any other. Other operations in the same beds may not encounter the same happy combinations that the Blackwood people enjoy.

As will be noticed in the accompanying illustration showing a projection of the mine in the Parsons bed, the outcrop line which corresponds fairly closely to the 2,740-ft. contour line on Black Mountain, limits the field of production. The distance from outcrop to outcrop is highly irregular, although fairly uniform near the location of the present workings. The High Splint field lying above is, of course, even more restricted, while the Imboden bed at the foot of the mountain has the largest unbroken area of any of these several measures. However, this bed, which averages about 6 ft. in thickness, has not been developed to date except at the Roaring Fork mines of the company. These are located 12 miles from Blackwood.

Both the Parsons and the High Splint coals show practically no tendency to weather. This statement is particularly true of coal from the Parsons bed, specimens from which have been exposed to the elements as long as 13 years without showing any visible effects. I was shown a block near the company's office at Blackwood which had been exposed for several years and still appeared to be in the same condition as when mined. This is a big factor in the development of these mines whose crop limits are so closely defined and relatively near each other. The coal is firm right up to the very outcrop. A small quantity of gas is encountered, however, as the outcrops are approached. Black powder is then displaced by permissible explosives when the coal is shot down.

Power for operating all of the company's mines is purchased from the Old Dominion Power Co., whose central station is located at Dorchester, Va. Substations are provided near all the mines.

Much has been accomplished by the Blackwood Coal & Coke Co. in community and welfare work. This section of country, which is naturally bleak and dreary to the eye, lends itself readily to any efforts that are made to relieve the monotonous outlines of the hills. Artificial beautification when applied in the form of transplanted trees and scenic playgrounds, is even more noticeable and gives a more pleasing impression than where the same scheme has been used in a district that lacks the impressive mountainous scenery for a background.

The miners' homes are substantially constructed, but they are of a design that is all too often encountered. However, Blackwood is a relatively old town. It is not the design of the houses that here creates a favorable impression. It is the careful consideration that has been conscientiously applied in the matter of making the most of a mediocre or even bad situation. Each house is neatly fenced and provided with a lawn, while vines drape the porches.

One thing is paramount in the problem of civic beautification. In the older mining towns that were perhaps hastily constructed and where it is now impossible to change the design of the houses, they may be made less bleak in appearance by camouflaging the exterior defects in design. If the men can be interested in their homes, there will soon be built up a friendly competition that needs no further attention, as it is self-sustaining. This has been carried out at Blackwood to a degree and with a result that might well influence other towns farther north to "go and do likewise."

What Happens to Pyrite Under Heat

Carbonization tests of a mixture of coal and pyrite at 1,000 deg. C. showed the formation of some free sulphur, that some sulphur was absorbed by the coal substance and that a larger amount of sulphide than one-half the pyrite sulphur remained, showing a secondary reaction in carbonization. A. R. Powell made the tests for the U. S. Bureau of Mines.

How an Anthracite Breaker Was Remodeled—I

The Old Forge Breaker Was Remodeled During Operation, Concrete Being Largely Substituted for Wood—Rebuilding the Supports Under Load Was a Delicate Process Requiring Great Skill and Care

By Dever C. Ashmead
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About three years ago the Pennsylvania Coal Co. of Scranton, Pa. decided that it was necessary either to remodel the old structure or build a new breaker at its Old Forge colliery. There were three reasons for this decision; first the cost of preparation was entirely too high as it involved the employment of 156 men; second, the methods of preparation were out of date and therefore the quality of the product was undergrade, and third, the foundations of the breaker were showing signs of decay and the cost of maintenance was high.

It would have been a simple matter to have torn down the breaker and built a new one on the old site or to have built a new breaker on another site but both of these methods were out of the question because of the fact that the country was at war and every pound of coal that could be produced was absolutely necessary for the proper conduct of hostilities. This made it impossible to tear down the old structure in order to build a new one as it was necessary to operate the old breaker continuously. Furthermore, a new breaker could not be built on any other site without negativing the idea of cutting down the cost of production. The expense of operation of the breaker could be reduced but that of handling the output would have been greatly increased. Consequently no material reduction in total cost of production would have resulted.

These conditions made it necessary to come to one of two decisions—either to abandon reconstruction of the breaker or else to remodel it while in operation. After careful consideration of the extra cost of such a method of construction and the results obtainable because of improved output and lessened cost of production, it was decided to go ahead with the work of reconstruction immediately.

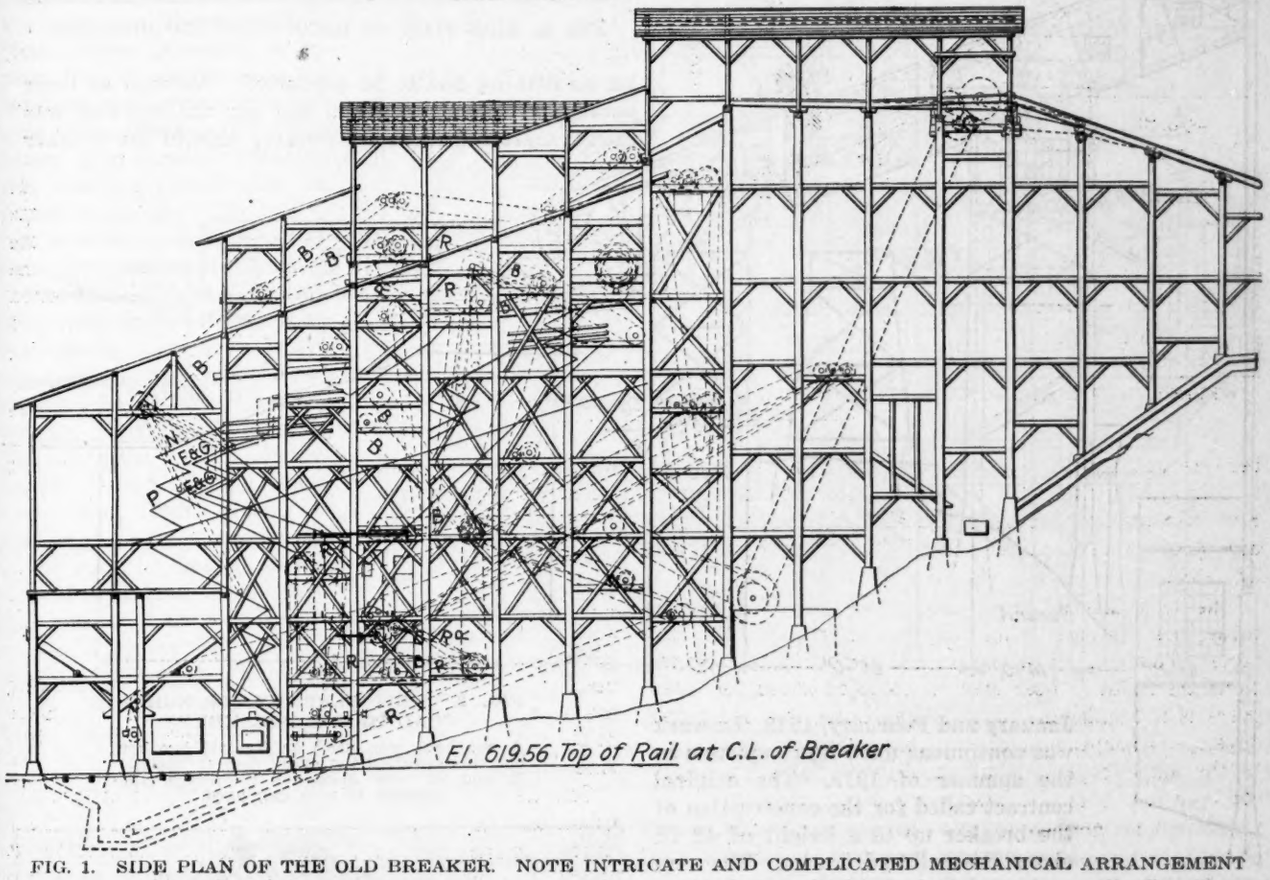

FIG. 1. SIDE PLAN OF THE OLD BREAKER. NOTE INTRICATE AND COMPLICATED MECHANICAL ARRANGEMENT

Having decided to start the work the next step was to decide upon the material to be used. Owing to the great demand for steel it was found impossible to secure this material on anything like advantageous deliveries so that the idea of steel construction, although the most favored, was abandoned. Wood was next traversed but, when the future life and cost of upkeep was considered, given up as costing entirely too much. It was found possible, however, to secure sufficient steel for reinforced concrete and therefore as the cement could be secured with comparative ease it was decided

that these materials should be used for the construction. The old breaker consisted of two buildings, one the main dry breaker proper and the other the washery. Both of these buildings were entirely of wood construction. It was planned that the dry breaker should be replaced to a height of 42 ft. above the railroad tracks with reinforced concrete. This included the pockets. The washery upon the completion of the reconstruction work was to be torn down.

Reese D. Isaacs & Son of Wilkes Barre, Pa., received the contract for the construction work and took two years to perform it. With the exception of two months, January and February, 1918, the work was continuous until its completion in the summer of 1919. The original contract called for the construction of the breaker up to a height of 42 ft. above the railroad tracks. The contract was further extended to include the construction of the breaker engine room and a rock pocket in the rear of the engine room; both can be seen in Fig. 3

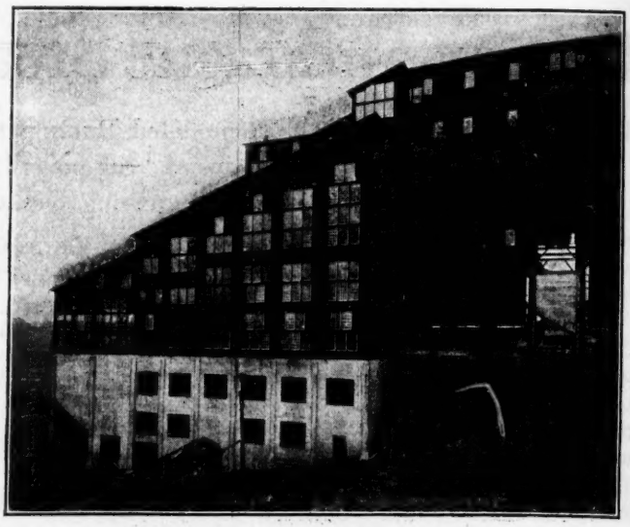

FIG. 3. SIDE VIEW OF RECONSTRUCTED BREAKER

In planning the method of handling the construction work it was necessary to take into consideration the necessity of continuing operation uninterruptedly. Accordingly the first step in the construction work was to transfer from the main breaker all operations on any coal below the size of egg that had to be treated where the construction work was going on. These operations were crowded into the washery. The egg coal was accordingly shunted from the side of the breaker farthest from the washery to the side nearest to it.

The pockets on this vacant side were then torn out completely as well as all the superstructure directly above them. This made the construction of the pockets on this side of the breaker a comparatively simple matter as nothing had to be supported. As soon as these pockets were completed and had set, the egg coal was then transferred from the washery side of the breaker

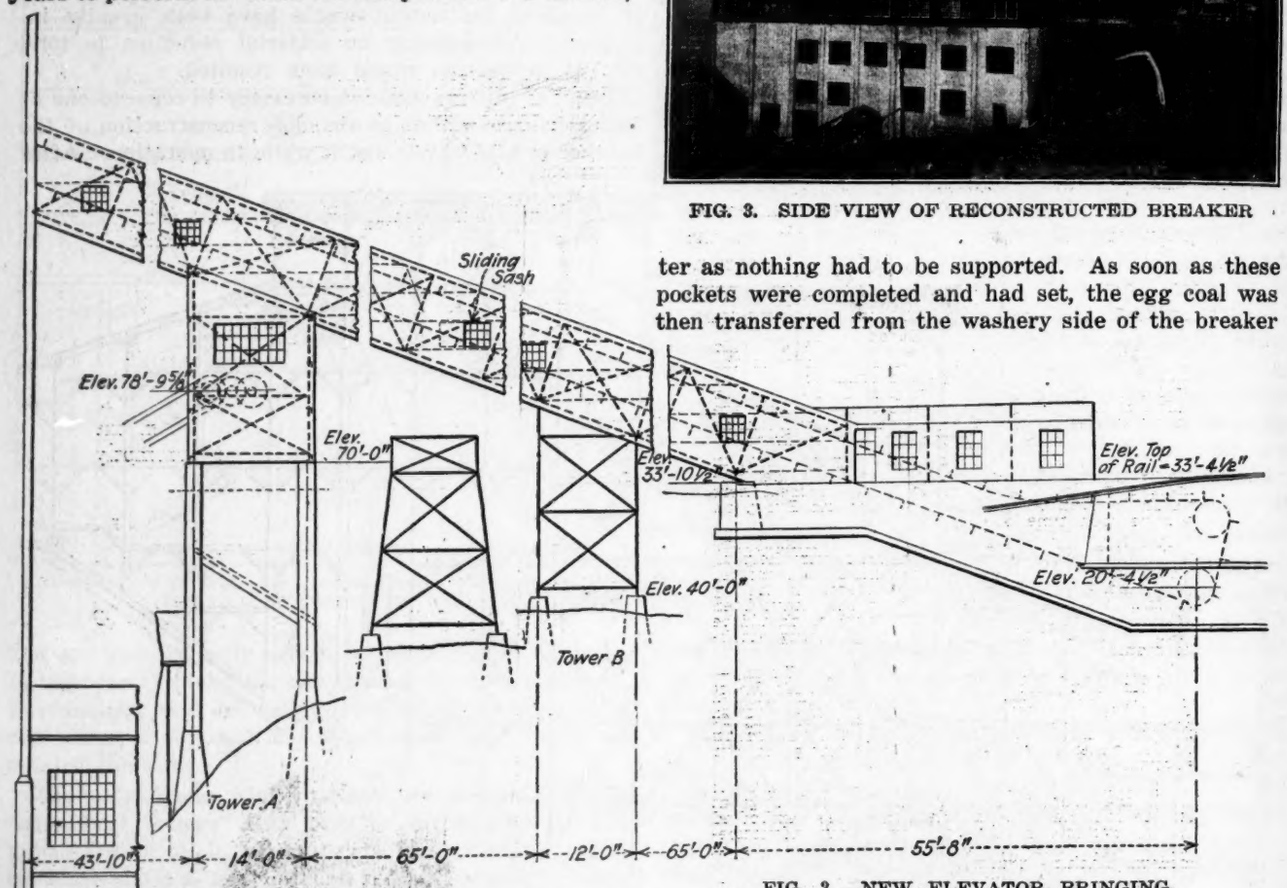

FIG. 2. NEW ELEVATOR BRINGING COAL TO THE BREAKER

A car haul was used on the old breaker but this required too many men to operate it and it was desirable to reduce the number of men employed.

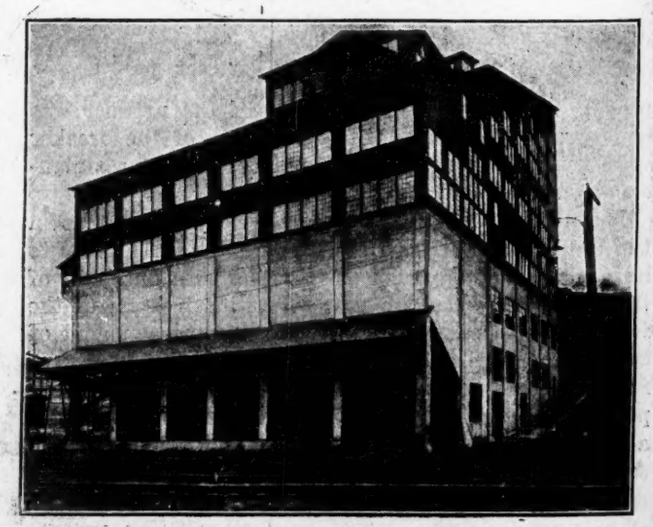

FIG. 4. ANOTHER VIEW OF THE REBUILT STRUCTURE

to the completed pockets. Next the old pockets were removed together with their superstructure and rebuilt. The wood structure above the old pockets had been taken down carefully so that it was possible to reassemble it upon the completion of the concrete pockets with a minimum loss of material.

While the construction work was proceeding, the changes in the preparation process carried on in the upper part of the breaker were being made. These included changing the types of screen and of subsequent treatment. The entire process was altered from dry to wet.

Having completed the pockets in the breaker, all chutes were put in proper place and the coal was then run directly into the pockets in the breaker itself and the washery was abandoned. It then became necessary to replace the foundations and the columns supporting the balance of the breaker. This had to be done carefully so that the building would not be placed in danger. The operation of coal preparation had also to proceed uninterruptedly.

The plan adopted was to replace one or two columns in one locality, then move to another part of the breaker and replace one or two more columns. This would permit plenty of time for the columns to set before placing their loads upon them. When replacing supports in the center of the building, that is in the central three rows of columns, only one at a time was rebuilt as the greatest load in the breaker rests upon these supports. When working on the outer three rows it was possible to replace two of the columns simultaneously. The methods for supporting the superstructure, when replacing either one or two columns, although simple, was strong. The wooden posts that were to be removed were 12 x 12 in. hemlock on the three outer rows of columns on each side of the building while in the central three rows they were 14 x 14 in. white oak.

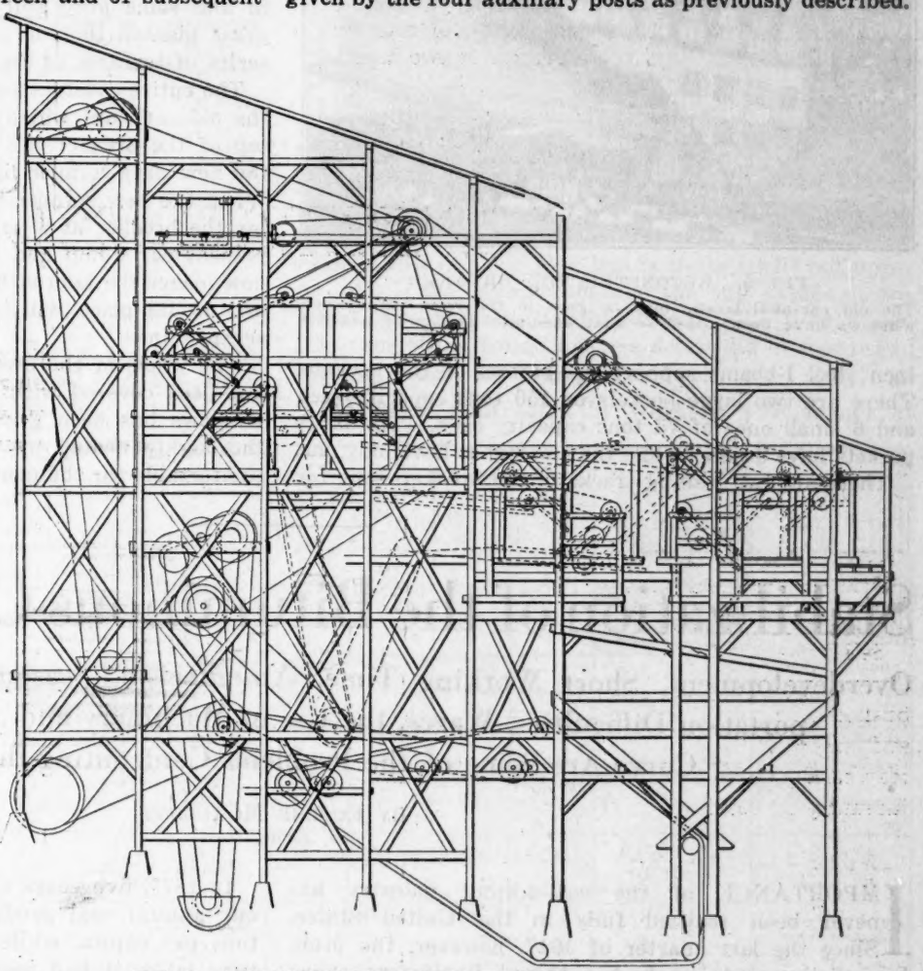

FIG. 5. ARRANGEMENT OF MACHINERY IN OLD WASHER

Washery was abandoned and torn down on completion of the remodeling of the old breaker, the washing being transferred to the new building, all the work being done under one cover. In consequence the handling of coal was much simplified and degradation was reduced

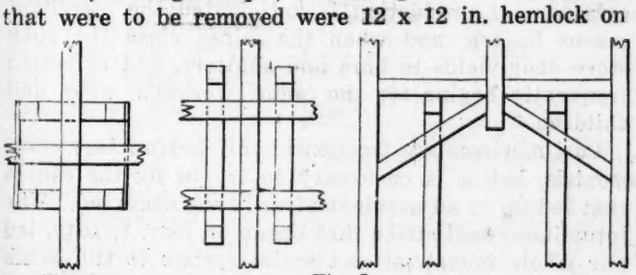

Fig. 6 Fig. 7

METHOD OF SUPPORT EMPLOYED WHEN REMOVING ONE OR TWO COLUMNS WHILE UNDER LOAD

By referring to Figs. 6 and 7 the simple method used will be readily understood. For the replacement of one column at a time, four posts were set about 36 in. from column to be removed, two cap pieces were placed as shown in Fig. 6 and the posts were diagonally braced in both directions. Next the main column whose lower part was to be replaced with concrete was cross braced in four different directions at a point immediately above the cut, thus transferring a part of the weight onto the four adjoining columns besides the support given by the four auxiliary posts as previously described. This made the supported column really stronger after than before its lower part was removed.

For the distribution of the concrete the contractors erected at the corner of the breaker nearest the railroad and farthest from the washery a tower 80 ft. high. This tower was sufficiently high to permit all the work in the main part of the breaker to be accomplished, but was not high enough to accommodate the construction of the engine room and the rock pockets which were added later to the contract. This extra concrete work necessitated the erection of another tower at the rear end of the breaker, The concrete was delivered by the first tower to the foot of the second and from this tower to the job.

The new reinforced concrete work is much heavier in construction than the old building. The main columns are 24 x 24 in. and the outer columns are 20 x 20 in. The concrete floors are 6 in. thick. The bottom of the pockets are of 9 in. concrete as are the walls. Twenty-

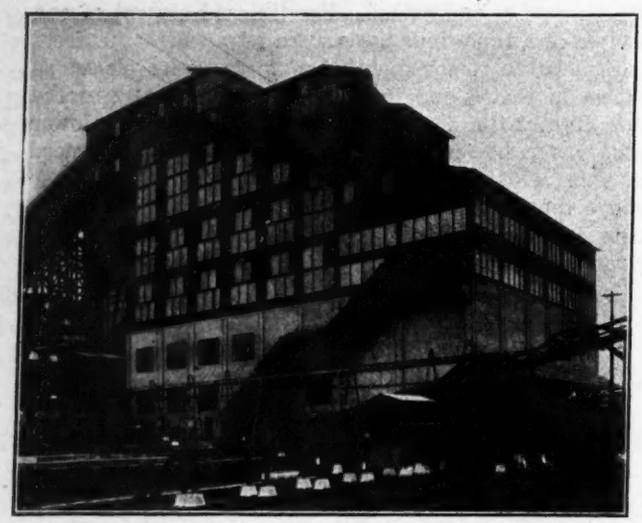

FIG. 8. RECONSTRUCTED BREAKER

The old car-haul trestle may be seen in the rear. Many new windows have been added so that adequate lighting is assured.

incn steel I-beams support the bottom of the pockets. There are two large pockets of 150 tons capacity each and 6 small ones of 75 tons capacity each. The large pockets have 3 gates while the small ones have only one.

There are two loading tracks at the breaker—one for open cars and one for the accommodation of box cars. The company up to the present time has not purchased a box-car loader as the original plans called for.

Upon the completion of the change from dry to wet preparation the old washery was dismantled and torn down. The stone from the foundation of this building and also from that of the breaker itself was removed and used in building a series of retaining walls on the outside of the breaker. These have been filled in and some good soil placed on top of the fill and grass planted thereon. As a result there is a pretty series of terraces at the side of the breaker.

The entire construction work is not as yet finished as the old car haul which carries the loaded cars to the top of the breaker has not as yet been replaced with the new drag-scraper line that is about to be installed When the new scraper line is finished the coal will enter the breaker at a point about 14 ft. lower than the present car dump and the long unsightly trestle that now makes the approach to the breaker will be removed and in its place will be the new steel trestle of the scraper line.

The whole of the breaker above the concrete portion has been covered with new siding and the number of windows has been greatly increased. The breaker is thoroughly heated by exhaust steam making it very comfortable for the men when working in cold weather.

Stabilization of the Bituminous-Coal Industry*

Overdevelopment, Short Working Time, Absenteeism, Seasonal Demand, and Transportation Difficulties, Wages, the Use of Machinery and a Fluctuating Load Curve Are Some of the Problems Confronting the Industry

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IMPORTANCE of the coal-mining industry has never been realized fully in the United States. Since the last quarter of 1917, however, the problem of the coal supply has thrust itself into every phase of our national life. For 28 months disaster in one form or another has confronted the industry as a whole and famine has actually threatened the workers.

Secretary Lane in speaking of the coal industry said: "It should be treated with profound respect, because we know from Paris that sacred treaties and national boundaries turn on its presence. The world wants our coal, envies us for having it, fears us because of it." Again, as was well said by Secretary Lane, "The public must accept responsibility for the coal industry and pay for carrying it on, the year round. Mine operators and mine workers of whatever mines are necessary to meet the needs of the country must be paid for a year's work." The 105,253,300 people who use coal, who depend on it for life, health and comfort, must sense the problems that confront the industry; it is of too vital importance to be longer let run adrift.

In 1870, five years after the close of the Civil War, our annual coal production of all grades was 0.857 tons per capita, while in 1918, less than half a century later, it had increased to 6.44 tons per capita. To this extent and in this ratio, has coal grown into our national life. Any interference with its production, however occasioned, is reflected immediately in the earnings and activities of the thousand lines of endeavor dependent on the coal industry. When a cessation of production is anticipated the merchant ceases buying, and when the mines close the open store door yields to bars and shutters, and privation frequently begins for the mine worker's wife and children.

Post mortems are frequently only perfunctory ceremonials, but it is customary to try to fix the causes that led up to an accident after it has occurred. The bituminous-coal strike that began on Nov. 1, 1919, led our whole industrial and social system to the brink of disaster. The responsibility for this national calamity—to some extent international in its effects—should properly be laid at the door of the coal consumer.

Early in 1919 a careful survey of the coal requirements of the nation was made by the United Fuel Administration, and it was estimated that the 1919

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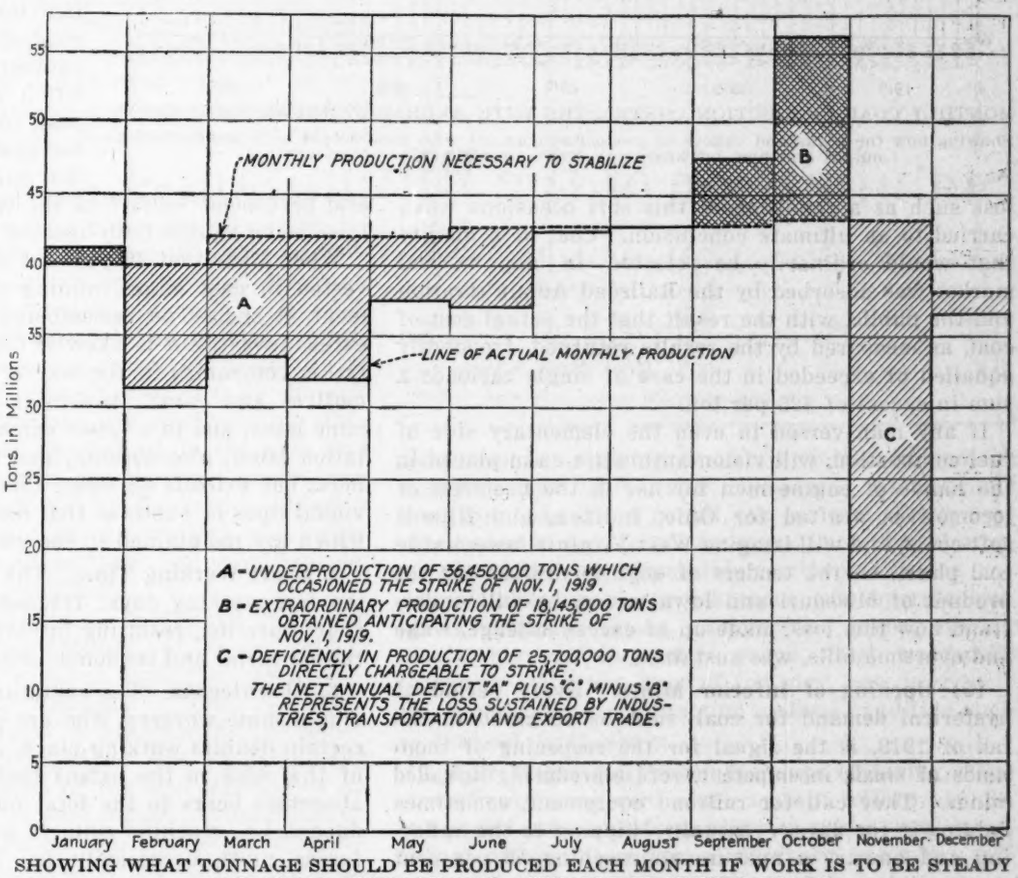
requirements of bituminous coal would total 500 million tons. The normal monthly requirements of the nation, with the tonnage produced and marketed, together with the excess tonnage produced or the shortage by months as set forth below, presents the conclusive evidence of the nation's responsibility for the strike of Nov. 1.

MILLIONS OF TONS WHICH WERE AND WHICH SHOULD HAVE BEEN PRODUCED IN 1919

	Normal Monthly Requirement	Monthly Production	Production in Excess of Normal Requirement	Production Below Normal Monthly Requirement
January	40	41.487	1.487	.....
February	40	31.566	....	8.434
March	42	33.719	....	8.281
April	42	32.164	....	9.836
May	42	37.547	....	4.453
June	42	37.054	....	5.446
July	42	42.698	1.98	.....
August	42	42.883	3.83	.....
September	42	47.402	4.902	.....
October	43	56.243	....	.....
November	43	18.688	....	24.312
December	38	36.612	....	1.388
Total	500	458.063	....	41.937

I have no hesitation in saying that if the 36,450,000 tons of bituminous coal not produced and, therefore, not transported and marketed in the five months February to June conclusive, had been so produced, transported and placed in storage for subsequent consumption, this strike would not have occurred with all the resultant losses occasioned thereby. In my opinion, if the bituminous-coal consumers of the nation had purchased the coal necessary to overcome the underproduction that occurred in the five months above mentioned, the nation's fuel bill would not have been seriously augmented during this five months' period, and, on the other hand, the domestic and foreign demands for fuel would have been sufficient to lift the annual production to the estimated 500 million tons.



SHOWING WHAT TONNAGE SHOULD BE PRODUCED EACH MONTH IF WORK IS TO BE STEADY AND WHAT TONNAGE WAS ACTUALLY PRODUCED IN 1919

An underproduction of over 36 million tons signalized February to June of last year. In September and October the tonnage produced exceeded the average figures by over 18 million tons. In November the strike was staged, and nearly 26 million tons less than average production was mined, and as a result the year ended with a shortage of nearly 42 million tons

During the early part of 1919 the coal transportation facilities made available by the Railroad Administration exceeded the demand. During this period, however, the market for bituminous coal was limited, and in many districts, mines were operated only 24 hr. per week. In certain districts where the quality of the coal, was relatively poor, individual mines work one day per week, one day in two weeks, and in some instances were closed for a period of from three to five months. There is no other industry in the world that would even attempt to live under these conditions, and the price paid by the coal-consuming public on account of this condition represents a sum that is hard to even approximate.

Late in July, 1919, a crisis developed rapidly and since that time there have been periods when the operator, the mine worker, and the consumer either in turn or simultaneously have suffered greatly from the inevitable results of the conditions that controlled the industry earlier in the year. The demand for cars could not be met by the railroads; the miners demanded shorter hours and a rate of pay which they hoped would relieve the situation; and, in the meantime, the 105,000,000 users of coal, after previous experiences of a somewhat similar nature, accept the situation as apparently inevitable, not realizing that a comparatively easy and probably the only practical remedy lies in their own hands if they will but apply it. While we cannot measure the full extent of the losses flowing from the strike begun Nov. 1, 1919, certain compelling conditions are deserving of more than passing notice, for example:

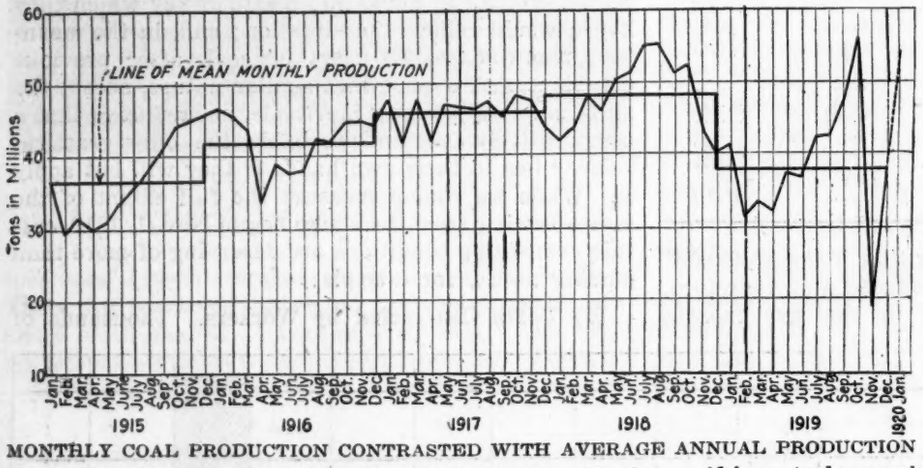
(1) Debts Contracted by Workers. Thousands of mine workers and industrial operatives will struggle for months to come in order to pay off the debts incurred during that period of idleness.

(2) Losses Sustained by Railroad Administration. The U. S. Railroad Administration, through losses sustained in the form of reduced earnings and in-

creased operating costs, was compelled to pass to the taxpayers a further deficit totalling many millions of dollars.

(3) Interruption of Industry. Because of the interruption to industry during the strike consumers are now paying a premium for basic necessities because of a scarcity of raw and finished material.

(4) Marketing of Inferior Coal. Reputable engineers allege that the product of many permanent mines showed an increase in ash content of 5 per cent above normal during the period of panicky demand felt in 1917. It is difficult to measure the extent of a loss such as a condition of this sort occasions when carried to an ultimate conclusion. Coal of a quality that would ordinarily be rejected in any normal market was absorbed by the Railroad Administration and the public, with the result that the actual cost of coal, as measured by the results returned, frequently equalled or exceeded in the case of single carloads a sum in excess of $25 per ton.



MONTHLY COAL PRODUCTION CONTRASTED WITH AVERAGE ANNUAL PRODUCTION

Showing how the peaks and valleys of production contrast with what would be a steady annual output and how markedly one year's average differs from another

If any man versed in even the elementary side of fuel combustion, will vision anthracite culm placed in the hands of engine men for use in the fireboxes of locomotives drafted for Ohio, Indiana, and Illinois soft coals, and will imagine West Virginia low-volatile coal placed on the tenders of engines drafted for the product of Missouri and Iowa mines, he will understand how this loss, made up of excess mileage, wage and overtime bills, was sustained.

(5) Opening of Inferior Mines. Every period of hysterical demand for coal, such as occurred in the fall of 1919, is the signal for the reopening of thousands of small, incompetent, refuse-producing so-called mines. They call for railroad equipment, sometimes holding it for days, eventually shipping to the suffering and unwary a mixture approaching 50 per cent combustible and 50 per cent ash and water.

It is fair to say that both organized labor and the operators have failed signally in their efforts to improve and stabilize the business. It is true that periods of peace among the operators, mine workers, and the consumers have prevailed for a few months at a time, but the condition at such times has been one of armed neutrality rather than of good understanding.

The welfare of the bituminous-coal industry affects in a vital manner every social, industrial and economic activity of the American people and the experiences suffered in the past two years should be sufficient to warrant the nation in lifting the industry as a whole to a plane upon which commercial stability may be possible. Briefly the essential problems which confront the industry are as follows:

1. Overdevelopment. There is, if properly employed, an overdevelopment of the bituminous-coal mine industry, and too many mine workers are now depending on the industry for a livelihood. At the time the survey of the nation's fuel requirements for 1919 was made, a similar careful survey of the industry developed the fact there is a potential annual producing capacity in excess of 700 million tons, or a surplus stand-by investment equivalent to 40 per cent of the normal amount of capital required.

This, however, is merely the first of the serious losses incurred; for example, the transportation and coal industries of the country have not, except in a few instances, realized the close and vitally dependent relation that exists between them. Where this relation was recognized in the past, unholy alliances were unfortunately frequently created for selfish purposes, the general permanent welfare of the two inter-related industries being substantially ignored.

When I say that 40 per cent of excess capital is invested in coal mines, mining machinery and equipment, it should be remembered that an equivalent excess investment is likewise carried by the transportation companies in the way of railroad tracks, locomotives and cars. A similar excess investment in mine labor, and to a lesser extent in railroad transportation labor, also obtains; and the loss does not stop here, but extends on down through the various individual lines of business that have been developed and which are maintained in the vicinity of the mines.

2. Short Working Time. The miner's year contains too few working days: frequently these days are of short duration, resulting in extraordinary and unwarranted social and economic losses.

3. Absenteeism. The voluntary absenteeism of individual mine workers, who are perforce assigned to a certain definite working place, reduces the production of the mine to the extent that the number of such absentees bears to the total number of primary producers, i.e., machine runners and loaders. Day-shift forces must necessarily be maintained, and the absence of primary producers working on the piece work basis seriously increases the unit cost. It is hard to measure the losses that flow from this extraordinary indifference to continuity of service, inasmuch as its effects extend down throughout the whole mine organization. In this connection can be mentioned disarrangement of haulage forces, the prolongation of the life of individual working places, with consequent increase in timbering and maintenance cost per ton extracted, the increased plant capacity and capital investment required, and the serious inter-

ference that is occasioned in the application of necessary safety measures.

The general public will perhaps be astonished to know that few mines suffer an average absenteeism of less than 10 per cent of their working forces, while in many mines voluntary absenteeism averages from 16 to 30 per cent. I have in mind one small property where the primary producers, i.e., machine men and loaders, lost 25.7 per cent of the potential working days available in October, 1919, the month immediately preceding the well-advertised strike of Nov. 1. I have said that this condition is unexplainable. Perhaps, a more dependable measure of continuous service, made possible by more uniform purchase and transportation would have a good effect on those disposed to absenteeism.

4. Seasonal Problem of Coal Sizes. The seasonal variation in the demand for coal of certain established sizes must be eliminated and the demand balanced. During the storage season an increased demand for the larger sizes will occur and it may prove difficult to market the smaller sizes that are less adapted for storage purposes. This difficulty can be overcome in part by large steam and railroad consumers who use mine-run coal, taking for current use during the storage period a compromise grade between screenings and mine run, while if necessary the smaller coals should be sold through a pool at not less than a normal market price, making a corresponding overcharge on the prepared sizes unnecessary and unjustifiable.

5. Seasonal Transportation Difficulties. The irregular seasonal demand made on the transportation resources of the railroads, including the items of railroad labor, cars, locomotives and terminal facilities, and which might be considered as largely assigned to and dependent on the transportation of coal for employment and revenue return, represents a loss which the public has looked upon in the past as the sole concern of railroad managers and stockholders. This charge, rather unfairly disposed of in the past, has now become a direct tax on the American people, and the economic losses suffered by the mining industry bear with double weight on the carriers who suffer through a premium paid on their fuel requirements, plus the revenue losses outlined.

The coal-mining industry is confronted with two distinct transportation problems: (a) its own underground transportation which is conducted under relatively difficult conditions subject to numerous dislocations, all of which must be absorbed by the industry; and, (b) super-imposed on this situation, and wholly beyond the control of the coal industry is an additional surface, steam-railroad transportation requirement, that during recurring periods frequently returns less than 50 per cent of the service required.

I will make the broad statement that no other industry suffers the transportation losses that obtain in the case of the production of bituminous coal. The consuming public must bear in mind that the owners of coal properties must pass these losses along to the customers of the commodity produced. In other words, the consumer again "pays the freight." The direct and inseparable relation that exists between the coal industry and the railroads must not only be fully recognized by both parties thereto, but a sympathetic, helpful attitude must be taken by the general public in undertaking the solution of this part of the problem.

In order that the hopeless inadequacy of the transportation facilities now furnished bituminous mines may be appreciated, I have prepared a tabulation showing hours worked and hours lost through lack of cars—during the 30-day period ending Feb. 10, 1920.

Idleness Due to Railroad Inefficiency

Mines "A" and "B" located in the Central Competitive field, and in two states ranking high as coal producers, represent a capital investment as of Dec. 31, 1919, of $1,567,000. When it is remembered that a coal mine requires the service of a large maintenance force whether working or idle, and that it must be pumped, ventilated and examined continuously throughout the 24-hr. period, the per cent of idle time chargeable to insufficient transportation should stagger those who are responsible for the conditions.

CHART SHOWING THE IRREGULAR OPERATION AT TWO BIG COAL MINES OWING TO CAR SHORTAGE

1920 January	MINE "A" Hours During Which Mine Worked	MINE "A" Hours Lost for Lack of Cars	MINE "B" Hours During Which Mine Worked	MINE "B" Hours Lost for Lack of Cars
12	8	0	6	2
13	0	8	8	0
14	8	0	7	1
15	0	8	0	8
16	6	2	5	3
17	0	8	8	0
19	8	0	8	0
20	6½	1½	8	0
21	0	8	7	1
22	7	1	0	8
23	0	8	7	1
24	0	8	5	3
26	8	0	4	4
27	7	0 (Note)	0	8
28	0	8	5	3
29	8	0	0	8
30	0	8	4	4
31	7½	½	0	8
February				
2	8	0	5	3
3	0	8	0	8
4	8	0	5	3
5	0	8	0	8
6	0	8	6	2
7	8	0	7	1
9	7½	½	7½	½
10	0	8	0	8
Total hours	105½	101½	112½	95½
Per cent	50.7	49.3	54.1	45.9
Hours per day, 26 days per month		4.06		4.33

Note—1 hour lost on account of mine disability.

Is it unreasonable to ask those who operate iron mines, copper mines, automobile manufacturing plants, car and locomotive shops, great mercantile houses or other like lines of industry, how long their establishments would function under a condition such as that set forth above.

6. Fair Wages for Proper Standard of Living. The cost of producing coal must be kept within bounds, and at the same time labor must be paid a wage equal to that earned in like lines of endeavor, and which will guarantee to the worker:

(a) The full American standard of living; (b) a margin, which if conserved, will insure him against privation and want in sickness and old age; (c) the opportunity to secure in addition proper social, educational and recreational privileges for himself and his dependents.

The unfortunate, unstable condition that now surrounds the industry is costing the country not less than $1 per ton produced, or one-half billion dollars annually.

7. Increased Use of Machinery Underground. The proportion of bituminous coal mined by machines reached in 1918, 55.9 per cent of the total, and electric haulage is rapidly supplanting animal haulage. The drilling and loading of coal should, as rapidly as mechanical facilities are perfected, be done by power-driven machinery, thereby reducing the number of operatives required. The ideal mine installation of the future will be one mechanically equipped throughout and the mine force should gradually evolve into one required primarily for operating and maintaining the machinery employed.

Production, employment, wages, transportation, profit and loss all show great variations. The public seems to think that the coal industry, operator and workman, can either produce fuel or lie idle indefinitely without serious detriment to anybody.

8. Uniform Load Curve. A uniform load curve must be established for the bituminous-coal industry. There is no substantial reason why the coal-famine shadow should overhang a nation which holds more than one-half of the known world's supply of this fuel, and which now mines nearly one-half of the coal produced in the entire world. Prior to the advent of existing transportation facilities, the Indian Empire suffered periods of merciless famine in one section, while food products rotted in the fields for want of a market in districts not far remote from the scene of these recurring periods of food scarcity whose toll was millions of lives.

We today have temporarily 40 per cent more mine development and mine labor than is necessary to meet the demands of the nation if such development and labor were properly employed, and the existing transportation machine would fall less short of the work of transporting the fuel requirements of the country if the consuming public, continuously menaced by famine and intereference with industrial production, would do its part.

The production curve, the work-day curve, the worker's wage curve, and the profit and loss curve all show too many peaks and valleys. I have referred to the transportation losses sustained in the present indefensible administration of the coal industry. Coal tonnage now approximates 35 per cent of the freight traffic carried by the railroads, and in addition, thereto, a material collateral tonnage of mining machinery equipment and material is moved by the carriers in a direction opposite to the coal movement.

The 600,000 mine workers and their families contribute materially to passenger transportation revenues. If the bituminous-coal industry load factor is to be improved, the four parties involved in the production, transportation and consumption of fuel must recognize the importance of the industry and collectively work out a solution of the problem. The public, as the consumer, gives little concern to the industry or its troubles until the day of disaster arrives when a condition approaching panic usually appears. The country normally moves on in its self-ordered way, without more than a negligible coal reserve. Somewhere and somehow it is presumed that the mines will produce coal and the railroads will transport it, providing it is wanted. When, however, the demand is reduced and coal is not desired, the same indifferent public feels satisfied that the mines and equipment will be maintained and the mine labor and transportation forces will remain standing at attention awaiting for the word "Forward"!

The American people have in the past invariably worked out a solution of their many recurring problems. What is lacking today is definite knowledge of the coal industry and its difficulties, and an orderly plan of remedial procedure supported by a sufficient motive.

Erroneous Reports Are Circulated

There is too much said about the conditions that surround the mining of coal that is not only erroneous and unreliable, but which is actually vicious. Whenever a sensational publicist or headliner seeks opportunity for notoriety he pays his respect to coal. Too many unsupported statements regarding excessive profits, high wages paid, low wages paid, etc., are being published, all of which tends to confuse the public and cloud the situation.

It is our duty to meet the issues squarely and to consider only such remedies as will make it possible to organize and build in a permanent manner; the day for temporizing has passed. I am unalterably opposed to government operation of railroads, of coal mines, in fact any form of industry. Government operation dwarfs and stifles initiative and individual endeavor. Those who advocate government ownership and operation today seek a preferential creditorship for their class at the expense of the more numerous, but less intimately interested stockholders.

I do, however, advocate the education of all citizenship. A full knowledge of every angle of the coal industry should be gathered by the government for the use of those who operate and work the mines, and most of all, for those who pay to maintain the industry.

There can be no broader conception of governmental responsibility than that which depicts the Government putting into the hands of every citizen the knowledge and the opportunity necessary for the attainment of results, allowing the individual to work out his own prosperity and wellbeing, free from the twin scourges of oppression and paternalism.

After carefully considering the experiences of the coal-mining industry during the last 20 years and particularly during the last 5 years, I am prepared to recommend strongly the following:

1. A General Coal Commission. There should be created at once a permanent general coal commission consisting of seven members, one representing the mine operators, one the mine workers, two competent accredited mining engineers and three representatives of the public, each with equal voting power, with a tenure of office of 7 years, the chairmanship rotating annually.

This body should be bi-partisan, appointed by the President, paid an adequate salary and endowed with a sufficient organization and authority to gather for publication and general distribution information concerning the coal industry, including the cost of production, average monthly and annual realization, pro-

fit per ton, per cent return on the actual investment, selling expense, allowances made for depletion and depreciation, compensation paid for death and disability, the hours and days of employment afforded labor, and the per cent of working opportunity accepted by the various classes of mine employees.

It should study the social, recreational and educational privileges afforded mine workers, the progress made by the installation of mechanical labor-saving devices; and, in fact, it should investigate every feature of the mining industry and related transportation problems. The authority of the commission should cease with the promulgation of the information secured, keeping clear of all administrative entanglements.

There should be no record, whether of owners or of labor union, that is not open to this body. The results shown by the commission should be representative of the general condition; extraordinary individual wage earnings or owners' profits whether high or low never indicate the true condition. A complete survey of the industry would, on the other hand, show what the whole public pays and what is received in return.

2. Price Fixing. With the safeguards made possible under the complete measure of publicity regarding cost, realization and profit that would be shown by the reports of the general coal commission, the existing anti-trust laws should be so amended as to enable the industry to agree on such minimum prices as would insure not only the payment of a proper return to labor employed, but in addition thereto, provide a sufficient margin to make certain the carrying out of all necessary regulations relative to a proper conservation of the fuel supply of the country, the safety of mine employees and to improve the social, educational and economic condition of the mine worker. Coal should not be produced and sold at a loss and on the same theory extraordinary intermittent tribute should not be levied on the consumer.

Carriers Can Do Much Toward Stabilization

3. Seasonal Freight Rates. Stabilization can be effectively carried out by the railroads through the adoption of seasonal coal rates. These can be put into effect without the passage of new or additional legislation by simply writing into the coal tariffs a provision to the effect that during the period, March to August inclusive, the rate shown in the tariff would be reduced 15 per cent; with the further provision that during the months, September to February inclusive, the rates shown in the tariff would be increased 15 per cent, making a net spread between the summer and winter rates of 30 per cent.

This provision need not involve any change in rate relationships or the measure of the freight rate paid by the consumer, providing he distributes his purchase on an approximately even basis throughout the 12 months of the year: on the other hand, the establishment of a more uniform load on the coal-mining industry would eliminate completely all periods of panic and hysteria when coal prices are frequently increased by buyers who frantically bid coal away from each other, paying in addition numerous extraordinarily high commissions to jobbers. It is a well known fact that frequently jobbers, who are without other capital than desk room and telephone service, edge in between the producer and the consumer, only to disappear when the demand lessens and conditions are restored to normal.

I have personal knowledge of four individual commissions totalling $1 per ton paid on coal moved during the pre-war period of 1917. Moreover, it is safe to say that an equalization of the mining load would reduce mining costs throughout the country from 25 to 50 cents per ton, a sum materially exceeding the profits that ordinarily accrue to the industry.

From a railroad-transportation standpoint, it is safe to say that the variation in the rates set forth above would tend to equalize the difference between operating costs that exist during the winter as compared with those that obtain during the summer months. The opportunity to employ a definite amount of coal equipment and track facilities continuously in coal carrying service, together with the privilege of maintaining adequate and trained car maintenance forces, represent transportation economies that cannot be well measured.

The per-cent basis of variation in seasonal coal rates would automatically force the summer movement of storage coal to the more remote points, thereby disposing of the maximum number of ton miles during the period of most favorable operating conditions.

Periods of High and Low Freight Charges Should Be Equal

The completion of the long-haul traffic during the summer months would further admit of a corresponding concentration of transportation effort in short-haul territory during the season of railroad activity, protecting that portion of the consuming public most disinclined to store coal. The period of high and low freight charges should be of equal duration insuring an equitable average rate to certain consumers who now buy in equal monthly installments. The reduction in rate should take effect on March 1, insuring the taking up of all seasonal storage stocks before the period of reduced consumption sets in, otherwise there will be a temptation to carry over stocks which would defeat the end sought.

Transportation rates should be made more nearly commensurate with the measure of service performed, that is to say, communities located in the immediate vicinity of mines should not be prevented from capitalizing their "opportunities of location." On the other hand, transportation companies overzealous to obtain traffic for limited period should not be privileged to make rates to points unduly remote on a basis approximating or below the out-of-pocket cost of the service recouping such traffic losses by charging unduly high rates on relatively short-haul business.

Make winter tariffs 15 per cent higher than a fair figure and summer tariffs 15 per cent lower, making these revisions Sept. 1 and March 1. Require better coal so as to reduce the amount of transportation demanded for escorting a British thermal unit from the tipple to the furnace bed.

In other words, transportation ton miles should neither be given away nor wasted, and the existing measure of cross haul that now obtains in the case of coals of relatively like character, which evil is made possible and fostered by railway traffic managers, should be eliminated.

4. Better Preparation of Coal. The cost of producing coal, including the items of labor and mine material together with the transportation charge required to move the fuel from the mines to the place of consumption, has now reached that point that will justify the statement, that coal loaded at mines should be prepared invariably in such thorough manner as will result in the elimination of all removable non-combustible matter. Any excess of non-combustible matter purchased, transported and handled reduces the percentage of efficiency normally possible one and one-half or two times the amount of such removable non-combustible matter placed in the car.

Five per cent of excess ash-making material loaded with clean coal frequently reduces plant efficiency, whether stationary, locomotive or domestic, 10 per cent; and in comparing the price paid for fuel f.o.b. cars at mines, this variation in the proportion of obtainable net efficiency should be considered in determining the actual cost of fuel delivered. Every producer should seek to establish a standard of quality and preparation as high as possible. This, however, cannot and will not be done while the present intermittent demand continues. I have seen the work of months spent in building up the standard of quality go down in a day under such conditions as those occurring in October last. The railroad and industrial field inspection forces will require months to regain the ground lost in the fall of 1919.

A No. 5 shovel will hold 20 lb. of coal or one per cent of one ton; during periods of excessive demand ten times one scoopful or 10 per cent of readily removable non combustible matter is frequently loaded with 1,800 lb. of coal. Double this loss to cover the interference suffered with combustion on the grates and figure the loss sustained on $4, $5, $6, or even higher-priced coal. The cost of producing and transporting fuel is now so high as to warrant educating the public to this serious source of loss. As costs go up the problem steadily becomes a more serious one.

Some Mines Must Go to the Wall

5. Temporary Elimination of Inferior Mines. Numerous mines now producing grossly inferior coal should be eliminated until such time as the growing scarcity of marketable fuel makes possible the investment necessary to clean and make marketable this product.

6. Central Sales Agencies. The existing duplication of sales forces and multiplication of marketing costs should be eliminated. Central selling agencies should be established for the disposal of the product of the several mines in each field.

7. Education of Public as to Storage Problem. Fear has been expressed that the coal-consuming public cannot be induced to make sufficient summer purchases and to store the volume of fuel necessary to equalize the coal-production load. This is a matter of education, and supported by the information made public by the general coal commission, and aided by seasonal variation in coal freight rates, the producers and retailers of coal can in a short time create on the part of the consuming public the habit of storing reserve stocks of coal. It is to be assumed that the railroads, public utilities and large steam consumers will be willing to bear their share of the burden of purchasing and storing during the six low-demand months their respective shares of the 50 million tons necessary to balance the coal production load.

The characteristic variations in demand as between seasons is well illustrated by the following statement of minimum and maximum production for the 4-year period immediately preceding our entrance into the world war:

MONTHS OF MINIMUM AND MAXIMUM PRODUCTION

	Minimum			Maximum		
Year	Month	Thousands of Tons	Per cent of Year	Month	Thousands of Tons	Per cent of year
1913	April	34,169	7.1	October	46,164	9.7
1914	April	23,609	5.6	March	45,455	10.8
1915	February	29,321	6.6	December	45,814	10.3
1916	April	33,628	6.7	January	46,596	9.3
Average		30,181			46,007	
Ratio		100 Per cent			152 Per cent	

In 1915 the Geological Survey undertook the compilation of monthly statistics covering the production of bituminous coal and lignite. The accompanying diagram shows the extraordinary variation in monthly production for the calendar years 1915 to 1919 inclusive. It is unfortunate that similar statistics are not available for the several coal fields as they would show an even more extraordinary range in monthly production, this condition being due to the fact that certain Eastern fields which are heavy producers of coal enjoy a relatively uniform production made possible by the summer movement of coal to New England and to the docks at the head of the Great Lakes. Progressing westward the seasonal spread widens until in the case of mines located west of the Missouri River, where industrial life is least active, this variation reaches maximum proportions.

Roughly speaking the bituminous-coal requirements of the United States, excluding the amount exported to Canada and foreign countries, but including coal used for bunkerage purposes, will approximate the tonnage shown below. The distribution as between classes of consumers of the additional 50,000,000 tons which should be stored during the low demand period is also set forth in the following table:

ANNUAL CONSUMPTION OF COAL WITH ESTIMATE OF NEEDED STORAGE

			Additional Storage Needed*	
Purpose for which coal is used	Millions of Tons	Per cent of total Production	Thousands of Tons	Per cent of Total Production
Coal-gas plants	5	1.0	507	0.10
Steamship bunkering	7	1.4	Not desirable	
Electric utilities	33	6.6	3,346	0.67
By-product coke	34	6.8	3,447	0.69
Beehive coke	52	10.4	5,273	1.05
Domestic consumers	59	11.8	5,983	1.20
Railroads	130	26.0	13,182	2.64
General industries	180	36.0	18,262	3.65
Total	500	100.0	50,000	10.00

*Additional storage estimated as being necessary during periods of low consumption to accomplish a stabilization of the industry.

If those engaged in the coal-mining industry will unite in presenting the benefits to be secured, there is sufficient intelligence and business force behind the industries of the country to insure each line of business performing its part in the matter of storing coal during the periods of low consumption. Insofar as possible, every consumer, whether railroad, public

utility, manufacturing industry or domestic consumer, should undertake storage of sufficient coal to create a balanced monthly demand on the mines, and the domestic fuel required by consumers who are not home owners can readily be stored in the retail distributors' yards.

The capital required for the accumulation of such storage stocks can be taken care of through the medium of acceptances issued by the retail distributor, (a) to the railroads to cover freight charges, and (b) to the producer to cover mine costs. Such acceptances when protected by a proper survey and adequate fire insurance should be taken by the carriers under special authority of the Interstate Commerce Commission, and would, without doubt, in the case of those given to the mine operator, be accepted by the banks as collateral for loans.

Individual sales made to householders who accept delivery, but who seek the privilege of deferred payment could be arranged for under the terms of specially prepared customer's notes payable as of a fixed date. The matter of storage capital requirements has been well covered by Cyrus Garnsey, Jr., late assistant U. S. Fuel Administrator, who recently said: "The retail coal dealer can and will finance summer storage if he has definite assurance that there will be an increase in retail prices as the season advances sufficient to cover the cost of storage." A small modification in summer prices at the mines, together with a lower summer-season freight rate, will guarantee this requirement.

Seasonal Rates Represent a Payment

The publication of seasonal coal rates on the part of the carriers would represent the equivalent of an immediate cash payment made to the consumer at the time storage coal was put down; this initial payment in substance being duplicated in the form of reduced fuel costs at the time the coal placed in storage is taken up for consumption. The statements now made by coal salesmen relative to low summer prices are seldom taken seriously by the consuming public. A railroad tariff, which is in substance a Governmental document, furnishing supporting proof of such reduction, would be accepted as dependable notice of a future and definite increase in the delivered cost of coal.

In considering the problems that confront us in our efforts to make the coal industry a stable one which will keep step with, and cease to harass our general industrial program, individual doubts must not be allowed to creep in. If we cannot develop at once a sufficient business to keep our deserving operations employed, then those that cannot find a market should be closed and means provided to carry the investment until a growing demand requires their reopening. With a foreign demand for coal which we cannot fill, I have no serious fear of the existing overdevelopment lasting long, bearing in mind that mines are worked out and abandoned continually.

Even if we have 100,000 men hanging on the fringe of an over-manned industry, there need be no fear of their suffering lack of work. With an extensive railroad construction and rehabilitation program confronting us, including the construction of thousands of cars and locomotives; with the demand for, not thousands but millions of homes, with our farms rapidly depopulating, the mine worker can take his choice of employment. Certainly no greater loss can occur to a nation than to have a material portion of its man power in partial idleness and bitter discontent.

I have sketched the bituminous-coal industry and the work of stabilizing it from the broad premise that every owner and operator of coal mines, every mine worker and every consumer of bituminous coal will be willing to contribute his part toward curing the evils that surround the industry and which have grown of late to such proportions as not only to menace our whole economic structure and wellbeing, but to actually threaten the foundation of our government.

Suggested Measures Can be Secured

With a general coal commission, such as is suggested above, to secure all of the facts regarding coal production and consumption, and with the active cooperation of the several business associations of the country, including the American RailwayAssociation, the National Chamber of Commerce, the several local chambers of commerce, boards of trade, manufacturers' associations in the various trade centers, the American Bankers' Association, the National Industrial Traffic League, the National Association of Public Utilities, the National Coal Association, the National Associations of Wholesale and Retail Coal Dealers and other business and trade bodies, there should be no difficulty in doing what is necessary to insure the informative, regulatory and remedial measures outlined above.

With the possession of all of the facts, there should be no room for controversy between mine owners and mine workers, and, on the other hand, all differences should be capable of prompt and fair adjudication between the parties at issue without the intervention of a governmental body. When, however, difficulties arise that cannot be amicably and properly adjusted, and which threaten the continuity of production, a separate mediative board should be empowered to determine a finding which should be based on the information made available by the general coal commission.

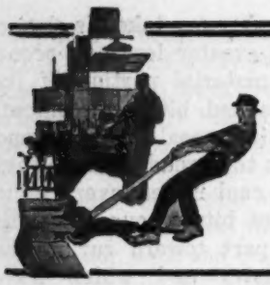
Working Model of a Welsh Mine

By Mark Meredith
Liverpool, England

Samuel Mead, has now on exhibition in Merthyr (Wales) a working model of one of the big collieries in the Rhondda Valley at which he was employed. He gave all his spare time during a period of seven years to its production, and experts state that his ingenuity and perseverance have resulted in a great achievement.

The model weighs one -ton, and is three yards in length. It affords a full representation of the mine at work as well as engine-house and other necessary structures on the surface. Groups of miniature men, 70 in all, go through all stages of pit work, and to complete the picture an ambulance party attends to a man who has met with an accident.

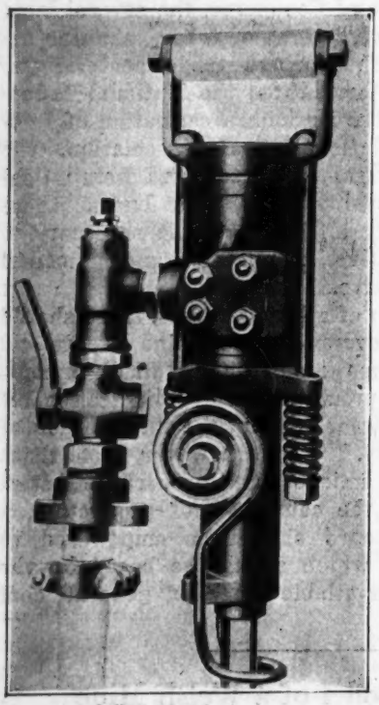
Coal when cut is placed in conveyors and cars and drawn along rails by a model winding engine to the bottom of a shaft—a deep one—and there hoisted by the surface engine. The lighting of the colliery is by electricity, and the whole of the evolutions constitute an exact replica of the routine of the miner's daily occupation.



NEW APPARATUS AND EQUIPMENT

A New "Jackhamer"

The Ingersoll-Rand Co. has developed, and is now offering for sale, a new member of the "Jackhamer" group of hand hammer drills. This machine, known as the BAR-33, is smaller and lighter than the other machines of a similar construction. It fulfills a long-existing need for a light self-rotating hammer drill. Its weight, of 21½ lb., should be a welcome feature as it permits the use of a drill in locations and positions not accessible to heavier machines.



NEW BAR-33 JACKHAMER

The manufacturer recommends this light drill for work in soft limestone quarries; for trimming in metal and coal mines, and for pop-hole work in quarries and open-pit mines. In addition to the above the machine may be conveniently used for drilling holes in concrete and masonry foundations. This type of machine is not recommended for drilling deep holes or for use in hard rock, but for drilling where a machine of extremely light weight is nesessary. The BAR-33 is the fourth type of "Jackhamer" placed on the market. Machines of this type are now available of the following weights: 21½, 35, 41, and 70 lb.

Storage-Battery Cell Cover Remover

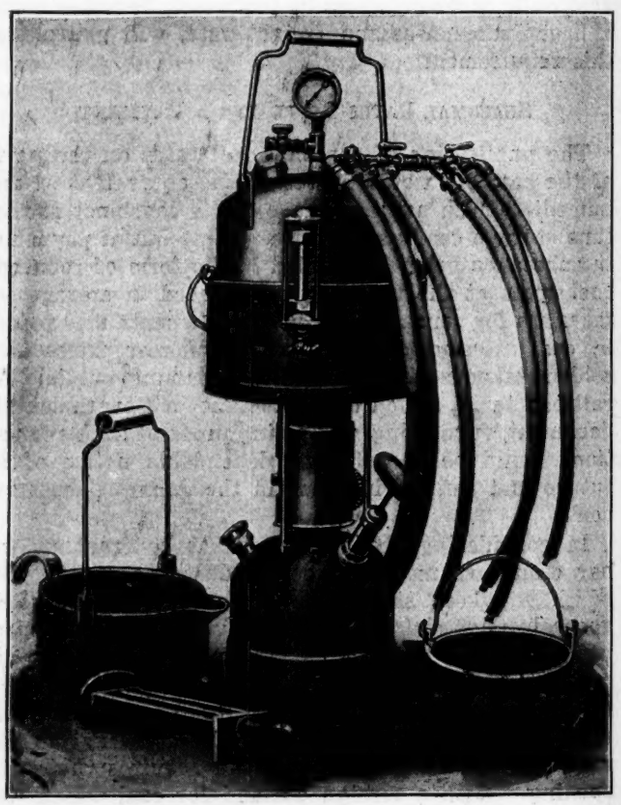
It is frequently necessary to clean storage batteries when they have become excessively dirty. This is best accomplished by means of steam, as all dirt and grease readily yield to it.

To replace broken cells, the top covers can be removed by steaming them open. A new and quicker way than the old time steam box has been introduced by the Hauck Manufacturing Co. of Brooklyn, N. Y. This firm has placed on the market a battery steamer that generates steam in four minutes, and which is now used by many charging stations.

This storage-battery opener is operated either by kerosene or with a gas burner and the steam is conducted to the battery by means of hose. The method of operation is to insert the composition hose tips into the vent hole of the cell. The sealing compound softens almost instantly, and the plate may be lifted out. The average repair man opens a battery and has it dismantled, in from three to six minutes which is decidedly faster than is usually the case.

The steam generator is of 3 gal. capacity, and is equipped with a safety valve which releases pressure at 10 lb., although 3 lb. of steam is sufficient to work with. The steam gage registers 30 lb. pressure. Where desired, a water gage is supplied. The manifold is equipped with six 20-in. lengths of steam hose having composition hose tips not affected by acid. The manifold is further supplied with three steam-control cocks. Any size of battery can be opened without loss of steam and in a short interval of time.

Furthermore, the manufacturer states that it manufactures a lead burner which operates with compressed air and oxygen, or gas and air, to be used for fusing battery-terminal straps or connections, and for similar work. Either or both of these machines find employment at charging stations and elsewhere where storage batteries are cleaned, charged or repaired.



OUTFIT FOR STEAMING OFF BATTERY-CELL COVERS

Steam may be passed through any number of nozzles up to six. This will accommodate any ordinary battery.

Coal Has Technical Session in New York Section of Mining Institute

Coal Preparation Should Follow Ore Dressing Methods, But Not Too Closely, Says Holbrook —Meissner Relates Progress in Coke Making—Ludlow Summarizes Problems of Irregularity in Mine Operation—Ransom Gives Results of New James Fine-Coal Jig—Wendell Describes Progress in Centrifugal Drying

By R. Dawson Hall

At the Wednesday, March 3, meeting of the New York Section of the American Institute of Mining and Metallurgical Engineers, E. A. Holbrook, chief engineer of the Pittsburgh station of the U. S. Bureau of Mines, speaking on Coal Versus Ore Concentration, stated that the preparation of coal had suffered from the fact that the subject had not had a sufficient degree of publicity and co-ordination such as the great work of Prof. R. H. Richards on "Ore Dressing" had afforded the metal industry. Much was known about coal preparation, but the information possessed by individuals had not been made available to others. The condition of the subject resembled that which obtained in relation to ore dressing in the earlier days.

Holbrook declares that lack of publicity regarding preparation is leaving the coal-mining industry floundering in uncertainty. He advocates the use of tables on all coal passing through a half-inch screen. Meissner gives details of Steel Corporation's fight to lift the coke industry from its wasteful habits and set it on a high conservational level.

Mr. Holbrook added that the low value of a ton of coal had made it difficult to approach the question of preparation with a readiness to spend money which was exhibited by those who attacked the problem of the successful and economical dressing of ore. With coal selling at $1 per ton, how could any large amount of money be spent in its beneficiation? This was true, even though the problem of shipping the coal made the presence of ash not only undesirable in use but also extravagant of transportation.

Progress Is Anticipated

Prices are now higher, Mr. Holbrook stated, and in consequence progress in preparation methods may well be anticipated. Another reason for expecting progress is that the good coal with a low percentage of sulphur is fast being used up. When we seek a coal for metallurgical processes, we are limited to fuels having less than one per cent sulphur. So, also, in our domestic- and producer-gas installations we need low-sulphur coals, and the reduction in the area of such deposits by continued extraction is making us wonder how we may succeed in beneficiating coals, which in the bed are unduly sulphur-ridden.

Mr. Holbrook declared that we had been unduly governed by European practices. We had naturalized these without having exact counterparts of European conditions. He added that he was of the opinion that, as ore which would pass over a 30- or 40-mesh screen was jigged while all finer than that was passed over a table, he expected that having regard to specific gravities it would be found best to pass the half-inch coal to tables and wash larger coal in jigs.

The need for a difference between the treatment of ore and coal arises from the fact that with coal it was essential only that a degree of beneficiation such as would make the coal pass the required specifications should be attempted. Any further rejection of impurity would result in the lowering of the speed of preparation, always an important matter with raw material of low value, and would cause a loss of fuel which had a distinct and valuable place in the fuel market.

Mr. Holbrook painted a vivid picture of a visit to a washery where he found a workman standing on a table, rake in hand, dragging over the coal on another table. The foreman explained that the table was rated to treat 8 tons per hour, but with the kindly help of the rake it was doing 18 tons every 60 min. When the audience laughed Mr. Holbrook denied that this story was in any way one rightly calling for merriment. He said that the table was cleaning its 18 tons in a manner that enabled it to comply with specifications and that without the rake it would waste excessive amounts of suitable fuel. In the metal industry there is no similar desire to wash to a given limit and no further.

He stated that little had been done in the coal industry to develop a good centrifugal drier till Carl A. Wendell invented his machine. Mr. Holbrook contended, however, that there was still a field in the preparation of sludge coal waiting to be developed and that dry concentration methods may well be successful.

The speaker then introduced the new Trent process of coal purification discovered by a member of that Trent family which invented some years past certain great improvements in the cyaniding process. Mr. Holbrook declared that a coal of 12,000 B.t.u. had been so completely cleaned that it showed 15,000 B.t.u., the ash running about 5 per cent carbon.

Carl A. Meissner, coke expert of the United States Steel Corporation, stated that his company had done much to advance conservation by its experiments and developments in the matter of byproduct coking. The first plant established was at Joliet, and, after its successful operation had been proved, orders were sent out that no more beehive ovens should be built.

The coking of Pocahontas coal with its 18 per cent

of volatile matter gave at first an immense amount of trouble. Even in the making of beehive coke it was found necessary, in order to avoid the formation of granular coke, to grind it extremely fine, so fine that 60 per cent would pass through an 80-mesh screen. The trouble with coking of Pocahontas coal in beehive ovens is that it gives only about a 55 per cent yield. When first used in byproduct ovens it was charged without mixing and it swelled so much that it could hardly be removed from the oven.

Edwin Ludlow read a paper which will be printed in a future issue, for it is a remarkable exposition of the conditions in which the coal industry finds itself in face of the problems of 1920. He said that nowadays it was possible to jig everything, down even to the finest dust. No. 3 buckwheat, the smallest size listed, goes over a $\frac{1}{8}$-in. mesh screen, but there are about 1,000,000 tons of dust produced in the anthracite region which will pass through holes of that size; and the problem is, what can be done with them?

Donald Markle, in making experiments for the purpose of writing his graduation thesis mixed extremely fine anthracite with tar and tried to find out what would happen when the mixture thus made was carbonized. He discovered that a useful product could be derived from these operations, and the material obtained is known as anthracoke. Mr. Blauvelt of the Semet-Solvay Co. became interested in this experiment, and the Hudson Coal Co. has made an appropriation of $100,000 for experiments which will determine satisfactorily what is the future of this new development.

When Mr. Ludlow was in Belgium he found that the coke men believed the best byproduct coke was made when the volatile matter in the mixture ran about 22 per cent. In order to produce uniform results they made a practice of mixing coals so that the 22 per cent. figure was invariably reached. When high-volatile coal was used it was their custom to compress the coal before it was put in the ovens and charge it in the oven so that it did not pack on the sides, making it possible for the expansion on coking to take place without crowding the sides of the ovens.

Ransom Speaks on New James Jig

R. S. Ransom, of the James Ore Concentrator Co., was the next speaker introduced, and he said that he and his company believed when they first began to make experiments in the preparation of anthracite coal that the jig was not suited for the preparation of the finer grades of coal, but that the table should be given the preference. Now he is of the opinion that No. 3 buckwheat or barley, which passes over a $\frac{1}{8}$-in. mesh, but passes through a $\frac{3}{16}$-in. mesh can be satisfactorily jigged, if the right equipment is used. He said that in his experiments with the James table excellent results were obtained from the point of view of perfect separation. The table that the company had installed separated the slate from the coal most satisfactorily, but unfortunately the capacity was small, and if such tables were to be used extensively the floor space provided for such preparation would be wholly inadequate. Besides, the tables use considerable water, and the product depends upon a uniformity of feed, such as can rarely be provided in a breaker. It would be necessary to have a feeder to regulate the delivery of coal to the table.

Last December a new James jig was run at a rate of 7½ tons per hour, the coal having 24.312 per cent ash, and the percentage of ash was reduced to 15.6 on leaving the machine. There were nine tons of coal in the bin and 2,056 lb. of slate were removed. It was decided to try to see if the machine could be speeded up with satisfaction, and the nine tons of coal in the bin were passed through in this instance in 38 min., as against 1 hr. and 25 min. in the previous experiment. The rate was 14.3 tons per hour. The raw coal in this case was somewhat better and ran 21 per cent ash, there being 13 per cent ash in the material leaving the machine. A further check showed 14 per cent, while another check placed the figure at 13½ per cent, this being about an average.

The speed was again increased to 19.1 tons per hour, and coal having an ash percentage of 24 left the machine with only 17 per cent of ash. With 13 tons per hour it was found possible to reduce the ash to 13 per cent. It was finally decided to make the speed from 16 to 17 tons per hour, and under those conditions coal with an ash percentage of 28 leaves the machine with 15.6 per cent of ash.

Only a Few Parts in Jig

In general, according to Mr. McNally, the maximum capacity at which the machine is run is 16 tons per hour and the coal rarely runs over 15 per cent ash, and on leaving the machine; the average result is more nearly 14 per cent. The jig has the advantage of having only few parts. Another advantage is that in using the jig the question does not arise as to how to take care of the middlings, as is the case with the table. Variable feed both as to quality and quantity obtains at Locust Mountain washery as in other places, but it is taken care of without any adjustment. No change need be made in the adjustments if the percentage of refuse changes. Sometimes the strippings are alone delivering coal, and then the impurity may rise to 40 per cent. At other times all the coal comes from the mines and then runs from 12 to 14 per cent ash. The only matters which must be watched are that the water is kept reasonably level, 3 or 4 in. from the coal bed, and that the machine is properly slushed out.

Carl A. Wendell, the next speaker, stated that in his belief good preparation was just as possible a few years ago as it is today, because the high price of coal is largely illusory, the money that is received for the product going no further in paying for labor and machinery than it did at an earlier date. Mr. Wendell said that $18,000 would buy as much silica brick a few years ago as would $40,000 now.

Coking Coal Should Be Dry

The presence of water in the coal fed into the coke oven caused the silica bricks which lined the oven to crack and spall and, therefore, it was extremely important that the coal should be as dry as it could be made. Mr. Wendell is the engineer who developed the centrifugal drier, which is now being sold by the Link-Belt Co., the experience of Mr. Wendell being obtained with the United States Steel Corporation.

Following Mr. Wendell, John Griffin of the Dorr Co. made some remarks on coal preparation in the anthracite region, which perhaps it would hardly be necessary for us to report here, because he has recently expressed his ideas at length in a paper entitled "Slush, Breaker and Mine-Water Problems," which was published in *Coal Age*, Feb. 19, pp. 349-353. Mr. Edwin Ludlow made some further remarks, and the meeting came to a close.

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Do As You Would Be Done By

A FEW DAYS back the public-service corporations went to Washington and told the Bituminous Coal Commission that the wage-paying operator should bear the cost of the increased wage. Fateful folly! Shall it not be said to them hereafter and with all the justice of retribution that the wage-paying public-service corporation shall also bear the cost of its increased wages and pay all the increase in material prices out of its past earnings?

Is this, in fact, not now being already said? Thus have the helots in the essential service of the public turned on one another saying to their masters, the useless and less useful industries, that they individually will support the masters in their injustices if thereby a little measure of relief may be obtained from an intolerable helotry?

Byproduct Coke Predominates

THE GOVERNMENT returns, as C. J. Ramsburg intimated in our Annual Review and Forecast Number, show that for the first time in the history of the country, the output of the byproduct oven exceeds, and quite notably, the product of the beehive oven. It is clear that one reason for that reversal of conditions in 1919 was that the demand for coke was far lower than the capacity of the ovens, and the beehives suffered the bulk of the contraction.

Whereas the byproduct-oven output fell off 997,000 tons, or 3.8 per cent, the beehive-oven product dropped no less than 10,831,000 tons, or 35.5 per cent. The decline in the output of the beehive oven was about 11 times as great as that of the byproduct oven.

Clearly the waste caused by the beehive ovens of the country may soon come to an end, for the growth in the number of ovens of all kinds makes certain that the beehive-oven industry will not long continue to be one of our nation's leading wastes. E. W. Parker some time ago ascertained that the loss in the operation of the coke ovens of the country would supply twice the amount of coal that would be needed to run all the trains of the Pennsylvania between Pittsburgh and Harrisburg. A few years have corrected that condition materially.

In 1918, when the byproduct ovens in commission ranged between 8,904 on Jan. 1, 1918, and 9,279 on Jan. 1, 1919, or on a rough average 9,091 ovens, the output was 25,997,000 tons, or 2,860 tons per oven. There were 853 ovens in building on Jan. 1, 1920, and 1,100 built in 1919, so these alone should produce, if the demand continues, 5,585,580 tons in 1920, which added to the output of 1918 should be 31,582,580 tons. Assuming that 1920 shows as much aggregate activity in coke making as 1918 and produces 56,478,000 tons as in that year, the tonnage of byproduct coke should be 31,582,580 tons, at least, and of beehive coke 24,895,440 tons, and byproduct coke should constitute 55.9 per cent of the whole output, showing that the gain of the byproduct oven on the beehive will still keep it well ahead of the beehive oven, of which the days are clearly numbered.

Of the byproduct-oven plants completed and put in operation in 1919 four were in coal districts, but two of these, that of the Jones & Laughlin Steel Co., at Pittsburgh, Pa., and of the Carnegie Steel Co., at Clairton, Pa., were located at steel plants, and two others, that of the Citizens' Gas Co., at Indianapolis, Ind., and that of the Indiana Coke and Gas Co., at Terre Haute, Ind., were obviously intended for gas supply.

Of the plants now under construction, two are in Birmingham, Ala., one at the steel works of the Cambria Steel Co., at Johnstown, Pa., and one at the Jones and Laughlin Steel Co.'s plant, at Pittsburgh, Pa. All the plants therefore now being built are either at large municipal centers or at steel works or at both. The coal people have not yet learned to use the gas from byproduct ovens and the general mixing of coals makes it usual to put plants convenient, not so much to one mine, as to two totally different fields.

Curing One Malady By Taking Another

MALADJUSTMENTS, whether of the human body or of the social order, frequently result in other unforeseen maladjustments. The oyster finds a piece of grit in its shell that it cannot remove and it covers it with nacre, which in itself is a body that must cramp the shell, but is more easily endured by the sensitive organism than the uncovered grit.

In like manner the coal operator finds in his industry an annoying interference—the car shortage—which he cannot remove. He tries to find some means by which he can get a car apportionment equal to his needs. He learns that the cars are apportioned according to mine capacity and so he builds up the equipment and personnel of his mine beyond his needs so that the inadequate apportionment will come somewhat near accommodating his necessities.

The railroads have been saving the expenditure of capital by permitting a shortage of cars, and President L. F. Loree of the Delaware & Hudson R.R. recommends that the practice be continued and that every industry "reservoir" its output and pour it gently into the railroad channels as opportunity presents. What then will be the result? A loss due to output being held out of use, a cost for storage and rehandling and above all an unnecessary increase of equipment on the part of the producer such as will give him an apportionment of cars sufficiently large to meet his needs.

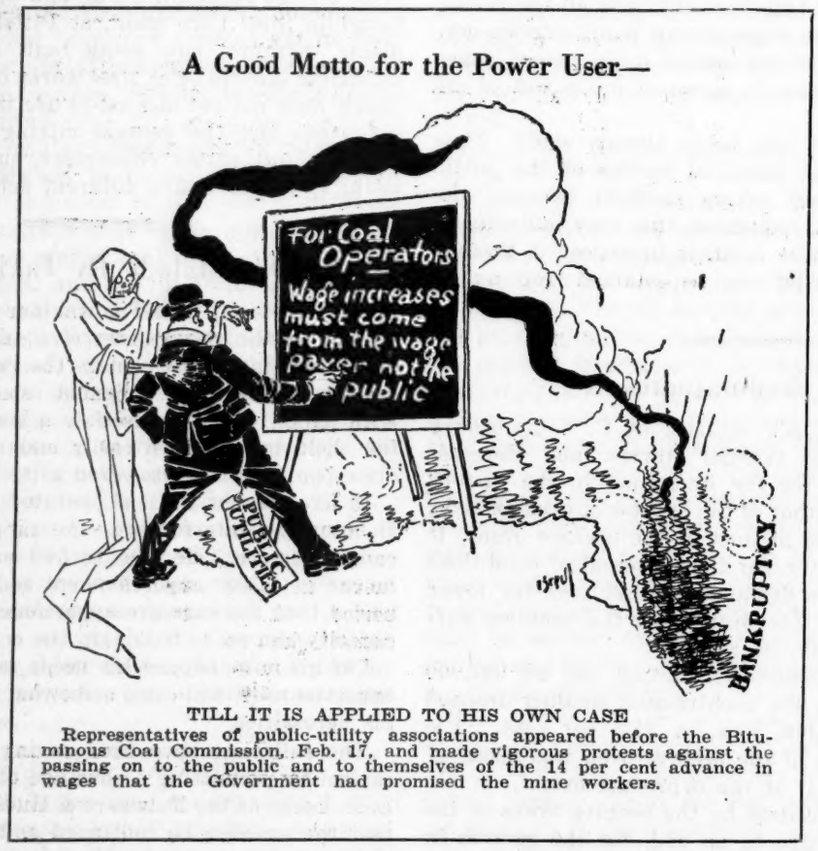
As regards President Loree, however, we must keep in mind that the Delaware & Hudson R.R. is well equipped and that therefore the call for larger provision is not addressed to his road and to the other anthracite-carrying roads but to those handling, in the main, bituminous coal or lumber.

As car shortage causes the producer to have additional equipment and excess of men, as it makes storage necessary and the large financial ability that must accompany storage, the idle capital and the idle men in industry are each far greater than the idle capital and labor on the railroads would be if the roads were properly equipped.

C. Andrade, Jr., speaking at the American Institute of Mining and Metallurgical Engineers, said that stor-

age was a heavy charge on finances and should be saved. But someone must stand such a charge in any event—the idle workman or the idle railroad. Someone must provide the excess equipment, mines and houses, and these are a heavy drain on finances. Hence it would be well that we have either more storage room or more railroad equipment. Better it is to lose the interest on property, than property itself. Labor is the property of the workman, he cannot afford to lose that property, and the nation as a whole cannot afford to lose it as well as it can afford to lose the interest on the premature investment.

Perhaps nothing was more illuminating in the whole Stabilization Conference than the remarks of H. M. Chance. He said he was one of the children of reprobation who were opening up more mines and seeking more men when more mines and more men were not needed. He was a consulting engineer, he added, for a public-service corporation that was tired of having its operations hampered and their continuance jeopardized by the coal shortage. They viewed the prospect of the exhaustion of the best deposits of coal as near enough to make investment desirable. So they had bought a tract of good coal and had instructed him to lay out a mine that would give an output of 1,000 tons a day. He had assured them that if they wanted such a tonnage it was necessary to prepare the ground for 2,000 tons, for only with such a capacity could a car apportionment equal to caring for 1,000 tons a day be unqualifiedly promised them.



TILL IT IS APPLIED TO HIS OWN CASE

Representatives of public-utility associations appeared before the Bituminous Coal Commission, Feb. 17, and made vigorous protests against the passing on to the public and to themselves of the 14 per cent advance in wages that the Government had promised the mine workers.

So long as cars are kept in all difficult times 50 per cent below call, so long will mines tend to be kept 100 per cent above needs. The excess equipment in the mine is a defense against the inadequate equipment on the railroad.

But not only must there be miles of underground road and working places by the score, tipples fitted for large capacity, mine locomotives in number and mine cars by the hundred, but there must be men in plenty, not to fill the cars when delivered, but to satisfy the railroad that the excess capacity is in man power as well as in machine power and development. If the men are in short measure, the capacity becomes regulated to suit.

Consequently, said Mr. Chance, if we want the railroad cars to haul away the tonnage we must have more men than the work will justify, and despite the unsteady work we must hold them and that can only be done by systems of welfare. This much, at least, the workman gains from an evil condition. According to Mr. Chance, much of the interest put into welfare work had its origin in the hope of inducing men to migrate to mines where an equipment for tonnage double their needs had been provided.

All this applies only to the bituminous coal industry and probably to the United States alone. In the anthracite industry, the railroads have cars enough, and the mines can scarcely fill their orders in normal years except as to the small sizes. It does not apply to Great Britain or to France because, in both, output is barely equal in ordinary years to meet the need and just now is hopelessly inadequate to fill orders. It does, however, apply to the bituminous industry of the United States almost wherever bituminous coal is mined, though New Mexico may be a partial exception. It is a deplorable condition to be best met by bringing the railroads more nearly to an adequate standard of equipment or by relieving the railroads by furnishing electricity from power stations at the mines.

A call for the stabilization of the coal industry is not made primarily to remove the losses resulting from the equipment and development, unused and closed mines. Idle machinery and dormant mine workings only involve losses from interest and depreciation, whereas, on the other hand, idle men cause a loss of real capital, for, indeed, the work of the artisan is nothing other than capital. Interest is important and too often forgotten, but the loss that comes from folded arms is one compared with which a loss of interest is negligible. A period of idle time is as disastrous as a fire. A conflagration wipes out something of value, while by reason of an idle spell the thing of real value never reaches the point of creation.

Still it must be remembered that the haltings of industry are, in many cases, highly important operations of economic law and such as cannot be suspended with entire impunity. When a man is idle it is in obedience to some law. Perhaps there has been an excess of production, and economic law is trying to urge him to embrace another industry where he is more greatly needed. When the time of perfect regulation comes, when work is always assured to the artisan, we shall find a lot of product made for which there is no use and at a time of year when other industries are, perhaps, clamoring

McKinney Says Coal Industry Is Robbed of Railroad Cars

Declares That Cars Bought for Coal Delivery Are Kept for Other Uses and Prophesies That Good Roads Movement Will Corral Car Supply

THE "coal" situation is the "car" situation, states W. D. McKinney, secretary of the Southern Ohio Coal Exchange, Columbus, Ohio in a letter addressed to Chairman Freylinghuysen of the Senate Investigating Committee. He goes on to say that the supply of coal is inexhaustible, insofar as this and a few succeeding generations are concerned.

There is enough labor at the mines, working a reasonable time, as in other industries, to produce fifty per cent more coal than we now require. Transportation only is lacking to give the public all the coal that it can consume and at a price fixed by the consumer. This lack of cars and transportation has been brought about largely by the rulings of the Interstate Commission prior to the great war.

It has caused the necessity of a Fuel Administration, and the necessity for the investigations of your committee. It has caused also investigations by the Federal Trade Commission, and the investigation now going on at Washington with the Coal Commission. It will continue to be the cause of investigations and the appointment of tribunals as long as the conditions are permitted to exist.

At one time, in 1916, one hundred and twenty-five cars of Toledo & Ohio Central R.R were loaded with pipe at Zanesville for Oklahoma and were over one year getting back to the initial line. This deprived the railroad and the consumers of not less than fifteen hundred car-loads of coal. This is but one instance for an illustration. These conditions have grown to such an extent that instead of coal receiving the primary use of the equipment purchased for its transportation, it simply gets the residue, a complete reversal of the original intent.

Agents Try To Keep Cars From Mines

This came about naturally under the Interstate Commerce rulings, for every agent on every railroad of the United States is or should be energetic to get as much business as possible for his line. He is anxious to get the kind of equipment that his customer needs. If there is an empty car on his siding, he wants it and all the persuasive power and influence is used that he and his shippers can bring to bear to obtain that car.

An additional word on this subject as to 1920: the states of New York, Pennsylvania, Ohio, Indiana, Illinois and Michigan have a good-roads program calling for the expenditure of over fifty million dollars during 1920. Practically all of the materials used for these good roads must be hauled in coal cars and not only must the material be hauled in coal cars but every agency, political and otherwise, will be used to see that cars are secured for this good-roads material.

The Governor of each of these states, the representative in Congress, the County Commissioners of every county, Township Trustees and the citizens who use the roads generally will bring every pressure to bear to secure cars for the good-roads movement and, mind you, the shippers of the materials for these good roads are not on a percentage basis. They will get all of the cars they need. This will mean just that many fewer cars for coal, and these cars will run to and from quarries, gravel banks, brick yards, cement plants, etc., and not to and from coal mines.

Retipping the Teeth of Crushing Rolls

D. C. Ashmead
Tarrytown, N. Y.

TWO years ago the U. S. Fuel Administration objected to the preparation of the coal made by the Treverton Colliery Co. at the Katherine Colliery, near Shamokin, Pa. This objection was based on excessive degradation arising from the worn-out condition of the teeth of the rolls.

It became necessary therefore to either purchase and install a new set of rolls or in some way to repair the old ones. As these rolls were of the solid and not the sectional type this meant the purchase of an entirely new set of rolls instead of the replacement of a few segments.

The company made inquiries as to the cost and delivery of a new set and found that the best delivery possible was at least six months with probably a longer delay. The cost, including the purchase price, installation expense and time lost was calculated to be about $5,000. This cost as well as the poor delivery made it highly advantageous to devise some method whereby either the expense or delay might be lessened, preferably both, but at least the delay.

Much Time Lost Installing New Rolls

The time lost in installing a new set of rolls it was estimated, would have amounted to nine shifts and this meant that the breakers would be shut down for that period. This in itself was prohibitive because of the demand for fuel.

The surface foreman of the coal mine thought that it might be possible to replace the old teeth with new ones but this was found to be impossible because of the difficulty of access to the machine and the condition of the teeth themselves. This investigation, however, led to good results for it was suggested that the teeth be retipped by welding. This was immediately tried, as the company owned an oxy-acetylene welding outfit, and excellent results were obtained. It was unnecessary to remove any part of the rolls and the welding outfit was used on the spot.

It took one man 12 shifts to make the repairs, but the work was prosecuted at night and did not interfere in any way with the operation of the breaker. The cost of the materials, including the gas, was less than $10, and the cost of labor was $54.28, or at the rate of $4.54 per shift. This made the total cost $64.28 as against $5,000 for a new set of rolls.

Rolls Are Examined Semi-Annually

The company now has the rolls examined every six months and any teeth that show excessive wear are promptly retipped. The rolls thus repaired, the company now believes, give every bit as good service as a new set would have afforded and they are now kept in perfect condition.

This method of retipping roll teeth can be successfully used on rolls made up of segments. The work in this case, however, can be done in the shops.

Survival of the Fittest—

Only One Escape Remains If Wages to Remain Stationary, Namely, More We Must Pool Our Equipment Infor

MIRACLES of efficiency wrought in trades having peculiar adaptability to the economies of multiple production have led the public to expect that all wage increases shall be met by elimination of waste and the introduction of machinery. Fortunate indeed is the industry that can secure an efficiency of operation such as can be attained in the punching and shaping of plates or in the making of watch parts.

Such developments will probably never come to mining, transportation or farming, yet there are large possibilities that with more and better equipment and more intensive methods a great development may take place though not equal to that which manufacturing processes have secured.

* * *

THE marvel has always been that the small mine without equipment has been able to continue in existence alongside of the big operation with large facilities. The explanation is simple; the small mine for a while has no inside transportation problems, for its work is not extensive; it is not started if there are any large surface difficulties to be met. If the small mine hopes to continue more than a year or so in operation it must lay plans for equipment to haul and cut coal and thus reduce the large expense that accompanies the operation of an extensive underground working.

* * *

REDUCTIONS of 50 per cent or over in the cost of operation may some day be made in the very best of mines and even to-day a 25 per cent reduction in cost is quite possible. The main difficulty in securing such a result is to be found in the attitude of the workman who wants its pay to be based wholly on output rather than on the labor or the time involved in producing the product.

There are many mines, however, that are working with antiquated equipment, using mule power, wasting steam, consuming electricity in useless resistance, using human effort where electrical energy would be less expensive, consuming ventilating power in eddy currents, wasting its output in broken, poorly-gated cars. Friction and flat wheels are consuming energy needlessly and much good coal is being prodigally thrown away at the tipple. In like manner the labor of unloading rock is nearly always excessive.

Progress is being made in removing these difficulties —now in one part of the country, now in another. *Coal Age* with contributors in every coal-mining state and province of North America and many overseas countries is the natural medium of exchange for all these many developments. The coal industry will never advance unless it progresses on the myriad feet of the whole mining public. Now one man or one establishment makes progress and now another, but unless the advance thus made is communicated to the whole body the advantage is lost.

* * *

MANY companies are publishing house-organs to give their employees a sense of the good work they are doing, to "sell the job" to the employee. *Coal Age* is doing that good work for every wide-awake coal company. It gives not only intercompany publicity, but publicity of a national and even of an international character. It kindles the right kind and largest kind of pride in the minds of the biggest as well as the most subordinate of company officials and makes the job worth while to them all. It lifts their daily work from a drudgery in a forgotten "neck of woods" into a proud and prominent endeavor of such merit as to be worthy of publication in a metropolitan weekly, read by all the world and copied

An Equipment Problem

Are to Be Raised and Prices Are
Equipment and Greater Efficiency.
mation So As to Meet Rising Costs.

broadcast the world over. In these days when "pride of achievement" is the watchword, *Coal Age* stands as the medium by which that pride can be created.

* * *

WEARIED by the dull glare of a tropical sun, drenched by the rains that wetted him to the skin, discouraged by the slides and bottom uplifts of the canal excavation, the man who worked at Panama longed for home but kept proud of his job, happy in its execution, strong in his morale, because every newspaper and every magazine of the country told of the importance of the work and discussed its details. He felt it was worth while even if it cost much. In like manner the man who went "over the top" was thrilled with the immense importance of the work on hand and vibrated in accord with the public sentiment as reflected in the newspapers and magazines.

So in like degree—let us concede at once that it is a lesser degree—the man whose plant, whose work, whose thought has record in a national publication is moved forward by that fact. In it every man who has achieved may read what he has done and many may profit by his thought and act. He has had a part in the World's Work, he has forged a link in the chain-binding nature; he has helped to bridge the chasm between things as they are and as they might be; and his work is known !

Publicity of the mechanical achievements at any plant is good therefore for the industry and for the contributor. His vision is cleared by writing—that alone is worth while—but his enthusiasm is also stimulated. It has been said that laziness in thought is more common than laziness in action and everyone knows it is so who has had to deal with men—and with himself. Many things, in fact, most things, are taken for granted; but given a great enthusiasm, a feeling that this is a period of big things and that one is in the thick of them and how largely will the imagination and the thinking, conceiving, and planning faculty be quickened ?

* * *

THIS is a long and dreary preface, the reader will say, to a request that he will send to *Coal Age* some information on what he is doing or on what is being done at the plant where he is employed. *Coal Age* wants to know something about the savings resulting from improvements installed, how certain difficulties were overcome by the use of improved equipment, how his haulage, ventilating, pumping, coal-cutting or mine-car placing problems were satisfactorily solved.

But equipment is not all underground; there are stokers and boilers, dynamos and engines, turbines and air compressors, lathes and drills, hammers and forges, there are large mines and small, big problems and little ones. All problems call for solution, all mines have their difficulties. We would like to receive information regarding the way in which, any and all, large and small, were solved to the satisfaction of the writer.

* * *

ON May 6 we will publish our annual Equipment Issue to which our readers are invited to contribute. All articles having line illustrations should arrive before April 6 and all others should be received before April 20, so as to leave ample time for the preparation of this important issue. The work of enlightening the coal industry will not be without its compensation; *Coal Age* will see that an adequate check shall reward the effort of every accepted contribution.

DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

Setting Return-Tubular Boilers

Letter No. 1—I have been greatly interested in reading the article of C. R. Weihe, *Coal Age,* Feb. 12, p. 308, in which he describes the resetting of a horizontal, return-tubular boiler and draws attention to many practical points.

In my practice, I have adopted the same methods outlined in that article, with the exception that our boilers are set 4 ft. above the grates. While I agree with Mr. Weihe regarding all the good features of this setting, I wish to state that he has only mentioned some of the good features about a setting of this kind and I will describe a few more obtained in a setting recently installed under our boilers.

First, by setting a horizontal return-tubular boiler, 4 ft. above the grates and with a moderately high bridge, say the top 22 in. below the shell of the boiler, with moderate care, it makes no difference how bad the water may be, there is absolutely no danger of bagging the sheets. Seldom will you see a leaky girth seam, which is often observed in boilers having a low setting.

Large Combustion Chamber Burns Smoke

Another feature, and one to be appreciated, is the good effect of the large combustion chamber in which the smoke is completely burned. The tubes then have clean hot gases passing through them, in place of black smoke, which always deposits soot in the tubes and coats them with an insulating scale that results in a wonderful waste of fuel.

In practice, this condition will cause a continual growl between the dayman and the nightman, on account of the nightman neglecting to clean the tubes; or because he cleans them too early in the night and they are dirty again before morning.

Another feature resulting from setting a boiler high above the grates is that the arrangement admits more air to the furnace and it is possible and economical to use the refuse fine coal that accumulates around the mine. With the old style setting it was necessary to use either lump coal or mine run. The work of firing is now a pleasure instead of a curse. As an illustration of the advantage gained by setting boilers in the above style I will cite an example of such a setting.

Good Service in Steam Power Plant

We have at our plant two horizontal return-tubular boilers, 72 in. x 16 ft., rated at 125 hp., each, making a total of 250 hp. With these two boilers we are running one 168-hp. engine; one 50-hp. engine; two hoisting engines, 16 x 36 in., for hoisting coal out of a shaft 160 ft. deep, weight of car 2,500 lb., coal 4,500 lb.; one pump 14 x 16 in. All of these are running almost continually, and we are firing with slack and refuse from around the mine. I notice that these boilers are popping off more than half the time. In case of the regular fireman laying off we have to pick up anyone who can shovel coal, to fire them; but we always have steam. There is not a swab on the place, and our tubes are never dirty, because we are burning all the soot out of the gases before they enter the tubes, and there is nothing left to be deposited in the tubes.

Protecting the Blowoff Pipe

There is one thing brought out in Mr. Weihe's article regarding which I do not agree with him. I refer to the method he uses in taking care of the blowoff pipe on his boiler. I consider the blowoff pipe one of the most dangerous places about a boiler, and one that can cause a lot of trouble if it is not properly managed. With the method of protection described, it is not possible to inspect this pipe as often as that should be done, and the chances are that it will be neglected and, consequently, give out some day when it is most needed, making it necessary to shut the boiler down.

My method of caring for the blowoff pipe, on the setting I have described, is to simply wrap it with a 1-in. asbestos rope, which gives a very good protection, though not as good as the brick covering mentioned by Mr. Weihe; or a V-shaped brick pier can be used, which is also very good. However, a solid covering around a pipe prevents its inspection and I therefore condemn its use. A V-shaped brick pier built around a pipe makes a very effective covering, under low-set boilers; but, owing to the liability of its tumbling down, under a high set boiler, I would condemn its use. The only effective covering, in my judgment, is the asbestos rope I have mentioned, as it can be removed at different places and allow the pipe to be examined every time the boiler is down. These places can then be patched with a new piece of rope. E. H. Hart.

Basket, Henderson County, Ky.

Electric Mine Haulage

Letter No. 7—The discussion in *Coal Age,* regarding the trouble so frequently experienced in electric haulage in mines, has interested me greatly, as it has been my fortune to be troubled in the same manner on different occasions. In one case in particular, it was necessary to abandon the attempt to use the locomotive that had been installed and secure a heavier one if we were to maintain the output of the mine at its regular standard.

It having been decided to install electric haulage in that mine, the question was put up to me by the general manager, who asked what size of locomotive would be required to haul the coal. After some little calculation, I reported that, in order to maintain the present output it would be necessary to haul trips of 20 cars. The grades on the main haulage road were 2 and 3 per cent, for distances of 600 ft. and 1,000 ft., respectively. I

stated that this would require a 14-ton General Electric locomotive, on the main haulage road. At the same time, I recommended getting a 10-ton, storage-battery locomotive, for use on the gathering haul in bringing the cars from the working faces to the sidetrack where the trips were made up to be hauled out of the mine.

Locomotives Too Light for Service Intended

My report was taken under consideration by the general manager, who decided a little later that a 10-ton locomotive would do the work on the main haulage road. He also thought that a 6-ton, storage-battery locomotive would do all that was required on the gathering haul. Accordingly, these locomotives were ordered and shipped to the mine. After the necessary electrical work was completed, the locomotives were taken into the mine and the installation was ready for service.

It was the second day after when, believing that everything should be working satisfactorily, I went into the mine to see if all was going right. I found the 10-ton locomotive hauling a 20-car trip up the 2½ per cent grade. The cars had a capacity of 3 tons each, making the weight of coal hauled, per trip, 60 tons. When I arrived the motorman was having trouble with his motor, and, there being 4 ft. of space between the track and the rib, I decided to follow the trip to observe the action of the locomotive and, if possible, locate the trouble. I soon noticed that the front wheels of the machine were being lifted sufficiently to let them slip.

As the trip reached the 3 per cent grade, the trouble grew worse. Soon the weight of the loaded trip acted to life the front wheels of the locomotive clear of the rails. The motorman at once shut off his power; but a broken bumper on the car next to the locomotive allowed the latter to swing to one side and the front wheels dropped onto the ties. The motorman stated that he had had much the same trouble the day previous, but did not like to mention it, hoping to overcome the difficulty. I ordered him to haul 12 to 14 cars on a trip and, while this overcame the trouble, it reduced the output of the mine.

Like Trouble on the Gathering Haul Reduces Daily Tonnage of Mine

Proceeding into the mine, I found the same difficulty was experienced with the storage-battery locomotive, which was at work gathering the cars and hauling them to the sidetrack. The front wheels of this machine acted in the same manner as I had just observed when watching the larger machine on the main haulage road; and I was obliged to give orders here also to reduce the load and haul only six or eight cars instead of twelve or fourteen, as he had attempted. By thus reducing the number of cars hauled, the trouble was overcome here also.

It was not long, however, before the falling off in the daily tonnage started an investigation by the general manager, who accompanied me into the mine to observe for himself. By his direction, the 10-ton locomotive was hitched to a trip of 20 cars and started on the upgrade out of the mine, with the result previously observed. Likewise, the 6-ton, storage-battery locomotive was made to haul a 10-car trip, with similar results.

The mine electrician was then ordered to make a close examination of each machine and reported that he found everything correct. As a last resort, the general manager had the front end of the 10-ton machine weighted for the purpose of holding the wheels down to the rails. I claimed that the extra weight on the locomotive would cause the overheating of the armatures, which proved to be the case. He then had the machine reversed, but with no better results.

For two months we persevered in our attempts to make these machines perform the required service, and then a 14-ton locomotive was ordered for the main haulage road. The 10-ton locomotive was made to help out the 6-ton gathering machine, by hauling the cars onto the sidetrack. By this means, we were able to reach the required daily tonnage in the mine.

I heartily agree with the statement of W. H. Noone, *Coal Age*, Feb. 5, p. 282, that there are many mines experiencing the same difficulty, which I found to be the case in mines in West Virginia and Pennsylvania.

John J. Clark,
Mine Superintendent.

Mahaffey, Pa.

The Vicious Circle

Letter No. 2—In his interesting letter on the so-called "Vicious Circle," *Coal Age*, Jan. 1, p. 22, Mack Williams appears to suggest two remedies or means of counteracting the present high cost of living. If I understand his meaning, he would have the government fix the price of coal and other important commodities and devise some measures to eliminate strikes. My own thought is somewhat at variance with these suggestions.

Allow me to express the opinion that if the government should adopt the policy of price fixing in order to fight profiteers the cure would be much worse than the ailment. If the price was fixed high enough to let some plants earn a living profit, others more favorably situated would reap profiteer's profits; and if the price were fixed low enough to prevent the better situated plants from making more than a reasonable profit, the low-grade plants would be driven out of business.

An open market where the law of supply and demand has free play is the only equitable and just method of price fixing. In such a market, the supply being regulated by the demand, the market price does not take long to adjust itself to a fair and satisfactory basis.

The Strike Problem a Difficult One

The problem of doing away with strikes is a deep and difficult one. To arbitrarily and forcibly repress them is autocratic and un-American, and to overcome the wage earner's desire for striking, by increasing his pay and bettering his living conditions until he is satisfied, is unpractical. The golden mean lies somewhere between, and we must hope and believe that it is obtainable and will be realized eventually.

The uninterrupted industrial production, in the United States during the war, was one of the largest contributing factors to the military success of the Allies. Comparative freedom from strikes was largely due to the patriotism of both wage earners and employers, in conjunction with certain mediating and arbitrating machinery that the government set up and operated, under the direction of ex-president Taft and Frank A. Walsh. If no better and more practicable means for preventing strikes can be discovered and put into operation soon; some scheme based on the experience of the National War Labor Board should be worked out and made effective.

It would scarcely be wise to make strikes unlawful, except in the case of certain public service occupations, as policemen, firemen, etc. Any man or group of men has an inherent right to refuse to do particular work, unless the safety of the government or the public is endangered thereby. When a group of men causes the whole consuming public to suffer through a general strike, intended to force their employers to grant them better wages or more comfortable working and living conditions, it is undertaking a grave responsibility. The people have everything to lose and nothing to gain by such a strike, which encroaches on the rights of the public. The answer of the labor leaders that "Might makes right" has had no standing since the signing of the armistice, Nov. 11, 1918.

Responsibility of Labor Organizations

Labor organizations should be made more responsible, certainly to the extent of incorporation under charters from the Federal Government. At present, the autocracy of labor is more to be feared than the autocracy of capital. Capital is now fairly amendable to control; but labor is running wild, judging from the number of wild-cat strikes unauthorized by labor leaders and often in full operation before employers are apprised of the reason of their men for striking.

Contrary to the claim of Mr. Williams, labor leaders deny that labor is a commodity; and many men of affairs like Mr. Vanderlip, president of the largest bank in the country, are in accord with this view. At any rate, it is not a commodity like salt or nails, which can be bought and stored until required for use. Labor is human and has human rights, the right to a decent standard of living.

In an industry like coal mining where steady employment is dependent on a steady car supply, steady demand for coal and many other factors beyond the control of the operator, the wage earner is necessarily idle a part of the time. This is because the great mass of the people wait until winter is upon them before ordering their supply of domestic coal. The wage earner registers a kick against the operator because of his enforced idleness for which the operator is not to blame. His plant is just as idle as the wage earner. The loss rests as heavily on the employer as on the men whose daily wages are cut off by the enforced idleness. There are no profits, but expense and loss instead.

Profits and Profit Sharing

Profits in business are the surplus remaining after labor is paid a decent standard of living, and capital has had a fair return on its investment. The wage earner, who faces the liability of a period of idleness, cannot in fairness and justice to his employer contend against assuming this risk and, at the same time, demand profit sharing. Unless he shares the losses, he is not entitled to share the profits of the business. The operator risks the failure to receive a due return on his capital, or even the loss of a part or the whole of his investment.

Profit sharing is a comparatively recent idea and will doubtless be worked out satisfactorily to all concerned if the rank and file of labor do not allow themselves to be led into unwise action by visionary and irresponsible agitators. Better and more lasting results can be accomplished by American methods of law and order, through responsible and trustworthy leaders.

One of the best methods of profit sharing, I believe, is for the employee to acquire stock in the company. Some of the more progressive companies are putting out a special stock issue designed for that purpose. Such an issue should be: (1) Safe (preferred stock); (2) paid for by installments if desired; (3) offer a good return on the money invested by the employee; and (4) be non-negotiable and redeemable by the company, to prevent its falling into the hands of outsiders. Such a scheme encourages thrift and builds up a bond of loyalty and sympathy between the company and its employees that will be a tower of strength to both in working out their mutual industrial relations.

By making the wage earner consciously a capitalist, even if only in a small way, he comes to acquire a sympathetic and concrete idea of capital, which has always been to him an abstract thought. After all, capital is merely stored-up earning power; and a wage earner who wishes to provide for his wife and children against the inevitable time when he shall no longer be able to earn a wage, by reason of death, old age or disability, must have recourse to "capital." Thus capital is humanly entitled to a return upon its investment.

Production and Thrift the Solution

The first step toward the solution of the so-called "vicious circle" is undoubtedly *production and thrift.* During the present period of restlessness, the employee should work hard; he should lay by instead of laying off. He should take a fair-minded view of the problems of his employer and the rights of the public, as well as his own. The employer should recognize, in everyway proper, the very human desire of the employee to participate in the management of the industry and the determination of his living conditions.

As for governmental machinery for avoiding strikes by mediation and arbitration, that will doubtless come as soon as the industrial and labor leaders and experts can effect it. Its design is indeed a knotty problem and calls for the best informed and fairest minded thought America posseses.

Walter H. Dunlap.

Kingston, W. Va.

Shifting the Workers

Letter No. 2—The view that I take of the incident narrated by "A. H.," in his letter, *Coal Age*, Feb. 12, p. 327, is that the electrician did wrong, by going to a man employed at other work and offering him another position, requesting him to report on the job a certain morning.

The electrician should have taken the matter up with the superintendent or the mine foreman, to learn if there was a man to take the place of the one at the substation, before trying to get him away from his job.

Again, we must consider that, in taking this man and placing him on the job of rail bonding, it is well to know whether the position of bonding was made vacant by some one leaving, or whether he was being put on as an extra hand and expected to remain. If the work of bonding the rails was an extra job and not necessary the electrician was adding to the daily cost of his department. At the substation, the man had been reeciving $110 per month. He was to receive $30 more in his new place, making $140 per month; at the same time, another man was to attend to the job he left, at the same pay, $110 per month.

In my opinion, any official is doing wrong when he increases cost without first taking the matter up with the superintendent. It is a well known fact that whenever the cost-sheet at a plant is increased it is the superintendent that must give an account of it and be able to explain where and why it was done, when the general manager goes over the cost-sheet.

At each and every mine, no one official knows it all; and, for that reason, it is important that the superintendent, mine foreman, electrician and master mechanic, all have a thorough understanding with each other. In fact, mine officials should never fail to co-operate and work together. Then such actions as that which occurred in the narration of "A. H." would not be so liable to occur.

Frequent consultation between mine officials on general matters concerning the mine, and the giving to each other their candid opinions, will often overcome many difficulties and reduce the cost of operation. Having been both mine foreman and superintendent, my own practical experience leads me to say that the action of this superintendent toward one of his employees shows plainly his lack of experience and ability to handle men employed in and around a coal mine.

Often has the mine electrician reported to me that a certain person would suit him, either for work as a wireman, bondsman or even as his assistant. I could not and never did, reply with such a remark, as "I will not do any such d—— thing." On the contrary, I would help the electrician, knowing that if he had the right helper it would be to my benefit.

Again, I have often had to use young men from off the coal, as extra spraggers, tracklayers' helpers, pumpmen and drivers, and have always been willing and glad to assist any who proved worthy of assistance and were interested in the work or job they desired. As a result, I have been fully recompensed by having satisfactory men on the job.

When a mine superintendent will not assist his workmen to better their conditions, when he knows that they are worthy of such assistance, and will not cooperate with his men or manifest a kindly regard for them, he cannot gain or hold their respect and will surely be the means of his company losing money.

———— Pa. Mine Superintendent.

Supporting Mine Roof

Letter No. 1—The inquiry regarding the supporting of roof in the Pittsburgh seam, which appeared in *Coal Age*, Feb. 12, p. 327, leads me to offer a few suggestions in reference to what is necessary, in the early planning and laying out of a mine, in order to reduce to a minimum the difficulties experienced by bad top.

Although this inquiry had particular reference to the scarcity of timber and the growing need of considering other means of support for the roof, I will not go further than to speak of those points, which if considered in the early development of a mine, will greatly reduce the quantity of timber required. First, let me say that, before we can hope to make a success in the extraction of coal with a minimum amount of timber and a maximum degree of safety, it is necessary to study the conditions existing in the strata overlying the seam and give particular heed to the character of the roof slate or rock immediately above the coal.

Examining the blueprints or mine plans, and observing the area of abandoned workings and the disposition of the working faces in the mine, we do not have to go far or look very close to discover evidence of the fact that little attempt has been made, in the past, to leave ample pillars for the support of the roof. The natural result is that a great supply of timber is necessary to safeguard the lives of the workmen, particularly where they are engaged in the hazardous work of drawing back the pillars.

Suggests the Longwall Retreating System

In the mining of the 6 and 9-ft. seams mentioned in the inquiry, I would suggest that, perhaps, the surest plan would be to work these seams on the longwall-retreating system, driving the main headings in the center of the tract, not exceeding 12 ft. in width and reaching to the boundary. The chances are, if the top bench of coal is arched a little, less timber will be required to secure the roof.

When the main and cross-entries have been driven to their limit, a longwall face is started at the inby end. My preference is to keep the longwall face in a straight line so as to distribute the weight of the roof more evenly over the packwalls, which must be well built and kept within 10 or 12 ft. of the working face. If there is a scarcity of building material, it will be necessary to bring rock from the surface or from other seams. I observed, in South Wales, rock brought from a stone quarry half a mile away and taken into the mine to build packwalls. The chocks in that mine were built in the form of a triangle, with one side parallel to the coal.

It is worthy of note that, in the retreating system, the haulage roads are always driven in solid coal, which reduces the cost of maintenance by avoiding the necessity of brushing roof or lifting bottom to maintain the necessary headroom on the roads. It cannot be denied that the work of development, in the retreating system, is costly, but there is a great saving in the outlay for timber and deadwork.

Mine Labor the Problem of the Future

Speaking of the future needs in coal mining, the labor problem will demand consideration; and mechanical coal cutters and coal loaders will be required to take the place of strong arms and muscle. If operators would give more attention in this regard, a far greater percentage of coal could be mined and loaded mechanically than is done at present. Generally, however, the majority of operators seem to tackle the problem by way of making the machine conform to the layout of the workings, instead of planning the work to suit the machine.

In my experience I have seen machines installed in mines where they were as much out of place as a butcher in a drug store. Before making changes or installing machines, let us study carefully the conditions and not go it blind. It would seem that it is the natural tendency of some superintendents and foremen to be constantly making changes, which in the end are of little avail for economical operation. In this manner, thousands of dollars are wasted annually.

Let me say, in closing, that it is my belief that there is a great need, in the development of the Pittsburgh seam, to give the same thought and consideration to the mechanical mining and loading of the coal as in reference to the support of the roof without timber.

West Pittston, Pa. Richard Bowen.

INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD

Trolley-Wire Guards

I want to ask the opinion of *Coal Age* readers on the requirement of compensation-insurance regulations making the standard width, between the guard boards of a trolley wire, 5 inches. Taking the wire as ½ in. in diameter leaves but 2¼ in. of clear space between the boards and wire. Would not danger arise when, as frequently happens, the trolley jumps the wire. The axle of the trolley wheel is practically 3 in. in length, and the result would be that the wheel would become wedged in this narrow space and either break the board or possibly pull down the wire when the attempt is made to adjust the trolley pole. I want to ask if it would not be better to require a space of 5½ inches between the guard boards.

Chambersville, Pa. Triprider

We willingly submit this question to the readers of *Coal Age* for an expression of their opinion. Assuming, however, that the trolley wheel and axle requires a clear space of 3 in. it might be safer to make the width of the boards, say 3½ in. and reduce the chance of the trolley jumping the wire.

Kerosene or Steam?

We are about to install a coal puncher of the Pneumelectric Machine Co's type, Syracuse, N. Y., in our mine and will probably want to operate one or two small pumps on the same power line. The coal puncher it is claimed will require a maximum of 7½ horsepower for its operation. Estimating that the pumps will not consume to exceed 1½ horsepower, I am thinking of installing a 10 horsepower engine to drive the generator.

To operate this outfit I am told that a kerosene engine will be much cheaper than a steam plant and will require far less attention. Not having had any previous experience in the operation of this class of machinery, I want to ask if the kerosene engine will giye satisfactory service. Also, kindly advise what sort of current should be used. The maximum distance of the power transmission will not exceed 3,000 feet.

Using a kerosene engine to operate the generator, can it be so adjusted as to require little or no attention after it is started? ROBERT H. DAUGHERTY

Coshocton, R. F. D. No. 6, Ohio.

Replying to this inquiry, we say without hesitation that a kerosene engine can be operated, in this case, with far less expense and attention than would be required by a steam plant. We would recommend, however, installing a larger unit than the one mentioned, as it is always safe to allow a good margin over the horsepower required. For this layout, we would use direct current, at 250 volts, owing to the difficulties involved with alternating current on account of the poor speed regulation obtained with the kerosene engine.

With regard to the transmission of electrical power a maximum distance of 3,000 feet, for the operation of two or more machines in the mines, it would not be advisable to generate alternating current in order to reduce the cost of copper. The increased cost of copper, for direct-current transmission, would be less than the cost of installing step-up and step-down transformers and a rotary converter when using alternating current.

Construction Work

Being in charge of construction work as foreman at our mine, I desire to ask two questions, as follows:

1. Should a furnace be built larger at the bottom and smaller at the top, in order to make it draw better?

2. When building an overcast in a mine, if the walls are not sloped down on each side of the main road will there be any increase in friction caused by the air current striking against the vertical sides of the main road, which has been bratticed off to deflect the current so that it will pass over the air bridge?

———, Ky. L. E. R.

In answer to the first question asked, we would say that it is common practice, in furnace construction, to make the area at the top of the furnace smaller than the area at the firebed. These areas, however, have nothing to do with increasing or decreasing the draft, assuming that the furnace is properly built so that the draft is not choked.

The draft of a furnace is determined by the effective air column in the stack, which depends on the height of the stack and the relative temperatures of the gases passing up the stack and the outside atmosphere. The contraction of the area of the furnace above the grate makes suitable allowance for the contraction of the ascending gases, as they cool in rising from the fire.

Replying to the second question, it is always better, in constructing an overcast in a mine, to start the work by blowing down the top over the main road where the crossing is to be made. An uprise is then started a short distance back in the cross-entry and driven upward on an angle of about 45 deg., and connection made with the opening already formed above the roadway. In like manner, a similar uprise is started in the parallel main heading or air-course and driven to connect with the same opening over the road.

In this arrangement, the air current will be deflected easily up the slope and over the air bridge, and there will be less frictional resistance than when the air current is made to strike against the vertical wall dividing the main road from the cross-entry. There is also the advantage that there is less chance for leakage or air when the approach to the air bridge is sloped upward in the solid coal.

EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD

Indiana Mine Boss Examination, Indianapolis, Indiana

(*Selected Questions*)

Ques.—Discuss the subject of mine ventilation, setting forth the purposes; mechanical devices and their uses; quality of air required and how determined; quantity of air and how determined; humidity and temperature and how determined; mine gases, how detected; their danger and how prevented; and give the law respecting mine ventilation.

Ans.—The purpose of ventilation in mines is to supply a sufficient quantity of pure air to make the mine workings healthy and safe. The mechanical devices employed are, a ventilating fan to create the air current; and doors, stoppings, air bridges and brattices to conduct the air through the mine and make it sweep the working faces. The quality of the air must be such that it is pure, free from dust and contains the normal percentage of oxygen, as determined by actual test. The quantity of air circulated must comply with the requirements of the law and be sufficient to create the necessary velocity to sweep the gases from their lurking places in the mine. The velocity of the air, as measured by the anemometer, multiplied by the sectional area of the airway determines the quantity of air passing. The humidity of the air is ascertained by the wet-and-dry bulb thermometer, which also gives the temperature.

The important mine gases are methane, which is detected by observing the height of flame cap formed in the safety lamp when this gas is present; carbon dioxide, detected by the dim burning of the lamps or their extinction; carbon monoxide, detected by observing its effect on small animals, as birds and mice; hydrogen sulphide, detected by its smell. Methane, carbon monoxide and hydrogen sulphide are inflammable and form explosive mixtures with air, the last two gases named being also poisonous. Carbon dioxide produces a toxic effect on the human system, causing headache, nausea, suffocation and death. These dangers must be prevented by an adequate supply of air and its proper distribution in the mine. The Indiana mine law requires the circulation of 100 cu.ft. of air per minute for each man and 300 cu.ft. for each mule employed in the mine, and as much more as conditions may require. The air current must be conducted through the entries and made to sweep the working faces clear of standing gas.

Ques.—Discuss haulage tracks in mines, with respect to bed, gage, weight of rail, ties, fishplates, curves, grades, switches, ballast, drainage and the law respecting wide entry and refuge holes.

Ans.—Mine tracks must be laid on a solid roadbed. The gage commonly varies from 30 to 42 in., depending on the size and weight of mine cars in use. Likewise the weight of rail, ties, fishplates, etc., will depend on the tonnage hauled and the kind of power employed. The weight of rail varies from 8 and 10 lb. per yd., in mule haulage with light cars having a capacity of 800 to 1,000 lb., to 30 and 40 lb. per yd., in rope and motor haulage. The size of ties varies from 4 to 8 in. in width and 3 to 6 in. in depth, depending on the same conditions. Mine curves and grades should be as light as conditions will permit and are limited by the kind of haulage employed. Mine switches commonly use a No. 3 or No. 4 frog. All tracks should be rock ballasted and thoroughly drained. The Indiana mine law requires a clearance space of two feet on one or both sides of the haulage road and this must be kept free from timber, slate or other obstructing material.

Ques.—Give five safety precautions that a miner should observe on going to his working place at the face.

Ans.—1. Observe the fireboss' mark and date at the face of the coal. 2. Examine carefully roof and coal to detect any dangerous top or loose coal that is liable to fall. 3. Set what timber is needed to secure the roof, before proceeding to load coal or do other work. 4. Take down any loose rock or coal. 5. Test the place for gas before proceeding to work.

Ques.—What is the best and safest way to detect the condition of the roof?

Ans.—The common practice of sounding the roof with a pick or hammer is not sufficient to insure its safe condition. Mine roof must be carefully examined at frequent intervals, in order to detect any loose top, slips or faults in the measures, boulders, "pot-bottoms" or other dangerous conditions that may develop in the extraction of the coal.

Ques.—Give five causes of accidents that occur on haulageways and the methods to prevent them.

Ans.—1. The practice of using haulage roads as travelingways; prevented by providing separate roads for the men to travel to and from their work. 2. Doors on haulage roads; prevented by building air bridges, as early as the development will permit. 3. Derailment of cars; prevented by providing well ballasted tracks, which must be kept in good condition and inspected regularly. 4. Roof falls on haulage roads; prevented by good timbering and frequent inspection and the replacing of old or broken timbers. 5. Cars standing on switches at the mouths of rooms or left on sidetracks, without protection; prevented by strict regulations regarding the handling and movement of cars.

Ques.—In what way would you provide for the protection of the men from falling roof?

Ans.—Adopt a systematic method of timbering the working places and insist on the frequent and careful inspection of each place, to see that these regulations are obeyed. Frequent inspection at regular intervals and strict discipline are the chief requirements in preventing accidents from falling roof. This applies alike on all roads and all working places in the mine.

NEWS FROM THE CAPITOL

BY PAUL WOOTON

Tidewater Coal Exchange Is To Be Continued For Sixty Days

Shipments To Exchange Ordered Compulsory—Order Remains In Force Till May 1, 1920—Fuel Administration To Exercise All Powers of Former Order of Nov. 6, 1917

The executive order signed by the President on Feb. 28, continuing the Tidewater Coal Exchange and making shipments to the same compulsory, is as follows:

By virtue of the power conferred upon me under the Act of Congress approved Aug. 10, 1917, entitled "An Act, etc.," and because of the present emergency, and in order to assure an adequate supply and equitable distribution and to facilitate the movement and to prevent locally or generally, scarcity of coal, I, Woodrow Wilson, President of the United States, do hereby order and direct that the order issued by the U. S. Fuel Administrator, dated Nov. 6, 1917, and entitled "Order, etc.," which was suspended by order of the U. S. Fuel Administrator dated Feb. 20, 1919, be and the same is hereby reinstated from and after this date.

Officials of Coal Exchange

It is further ordered that J. W. Howe, at present commissioner of said Tidewater Coal Exchange, Rembrandt Peale, F. M. Whitaker, and J. F. Fisher, are hereby designated and appointed as my representatives to carry out the provisions of this order, they may exercise the powers reserved to the U. S. Fuel Administrator by said order of Nov. 6, 1917, and they are further from and after 12:01 o'clock A.M., on March 1, 1920, vested with the authority now vested in the Director General of Railroads, relative to the export of coal from the United States.

This order shall remain in force and effect until midnight of the thirtieth day of April, 1920, at which time, unless otherwise ordered, it shall cease to be operative. The order was signed by the President.

The order of Nov. 6, 1917, is quoted as follows: "Order relative to tidewater transshipment of coal at Hampton Roads, Baltimore, Philadelphia, and New York, and for the employment of and co-operation with the Tidewater Coal Exchange, so called, as a common agency to facilitate such transshipment and to reduce delays in the use of coal cars and coal-carrying vessels."

It appears to the U. S. Fuel Administrator that the production of coal intended for transshipment at the Tidewater ports of Hampton Roads, Baltimore, Philadelphia and New York and ports near or usually considered as tributary to said ports is being restricted, and that the loading of coal-carrying vessels and the unloading of coal cars at such ports and the movement, arrival and return of such vessels and cars at and from such ports are congested and delayed, and that the shipment of coal from such ports is reduced in quantity, and that the distribution of coal to consumers in the territory tributary to the ports to which such coal is destined is less efficient, prompt, and reasonable than is necessary for the efficient prosecution of the war, and that delay is occasioned in the delivery of coal for vessels of the navy and transports of the army, by reason of the continuance of individual shipments of coal by various producers upon the lines of coal-carrying roads having terminal at the ports aforesaid, and of individual and distinct transshipments of such coal at such ports only to coal-carrying vessels specially chartered or designated for the transshipment thereat of such individual shipments. The objectionable conditions aforesaid can be largely eliminated and the production, shipment, and distribution of coal from said ports both for the army and navy and for consumers in the territories aforesaid can be hastened and improved by the employment of and co-operation with a common agency at each transshipment port in the manner and with the powers hereinafter provided, and that such employment of and co-operation with a common agency is essential to the national security and defense, for the successful prosecution of the war, and for the support and maintenance of the army and navy, and to assure an adequate supply and equitable distribution, and to facilitate the movement, and to prevent locally or generally scarcity of coal.

The U. S. Fuel Administrator, acting under authority of an Executive Order of the President of the United States, dated Aug. 23. 1917, appointing said Administrator, and in furtherance of the purpose of said order and of the Act of Congress therein referred to and approved Aug. 10, 1917, hereby orders and directs that, until further or other order of the U. S. Fuel Administrator and subject to modification hereafter by him at any time and from time to time, the following rules are established for the regulation, to the extent hereinafter provided, of the method of production, sale, shipment, distribution, apportionment, and storage of bituminous coal for transshipment at the ports aforesaid.

Transship Coal Must Go To Exchange

(1) Every shipper of bituminous coal for transshipment at any one of the ports at Hampton Roads, Baltimore, Philadelphia, and New York and ports near or usually considered as tributary to said ports, shall on and after Nov. 11, 1917, consign all such shipments of coal to the Tidewater Coal Exchange, so called, of which Rembrandt Peale is the commissioner. Such shipments and consignments shall be made by each such shipper in accordance with and subject to the provisions of the existing Tidewater Coal Exchange rules in the same way to the same extent and with the same rights and liabilities respecting such shipments and the transshipment and delivery of the coal included therein, as under the terms of said rules apply to members of said Tidewater Coal Exchange but no such shipper subject to this order shall be required by reason of anything herein to become a member of said Tidewater Coal Exchange.

A copy of said rules is annexed to this order and hereby referred to. Wherever said rules refer or mention a "member" or "members" of said Tidewater Coal Exchange, said terms shall with respect to this order and shippers subject hereto be deemed to mean a shipper or shippers of coal who are subject to this order; and wherever the "effective date" of the Exchange or of said rules is referred to therein, such reference shall be deemed, with respect hereto and to the shippers subject hereto, to refer to the effective date of this order.

(2) Bituminous coal consigned under the provisions of this order shall be graded and classified in accordance with '"Exhibit B" Consigning Pool Numbers,' referred to in said rules of the Tidewater Coal Exchange, as modified, cancelled or superseded by the pro-

visions of Classification C, dated July 15, 1917, Classification D, dated July 17, 1917, Classification E, dated July 19, 1917, and Classification F, dated July 27, 1917, and in accordance with the provisions of said Classifications C to F inclusive, wherever applicable, copies of which and of said "Exhibit B" are on file with this order in the office of the U. S. Fuel Administrator for inspection by any shipper subject hereto.

Changes May Be Made

Changes in said classifications shall not be made against the objection of any shipper subject hereto except after approval of such changes by the U. S. Fuel Administrator. Upon application from any shipper subject hereto, the representative of the U. S. Fuel Administrator appointed under the provisions of paragraph (3) of this order is directed to furnish copies of said "Exhibit B" and said Classifications C to F to such shipper.

(3) Said Rembrandt Peale, commissioner of said Tidewater Exchange, is hereby designated and appointed as the representative of the Fuel Administrator to carry out the provisions of this order with power to appoint deputies representing him as such representative of the U. S. Fuel Administrator at any one or all of the ports aforesaid; and in case of any disagreement or controversy between any shipper subject to the provisions hereof and said commissioner with respect to any shipment or transshipment of coal or other matter arising under this order, or if any decision under rule 15 of the said Tidewater Coal Exchange Rules hereto annexed, which would be final as to any member of said Exchange, is unsatisfactory to any shipper subject to the provisions hereof, such shipper may appeal to the U. S. Fuel Administrator.

(5) No change shall be made in the membership of the Executive Committee of said Tidewater Exchange except with the approval of the U. S. Fuel Administrator so long as this order is in effect.

May Apply for Suspension of Order

(6) Any shipper subject to the provisions of this order may at any time apply to the U. S. Fuel Administrator for suspension or termination of this order upon the ground that its continuance is no longer essential to the national security and defense and for the successful prosecution of the war in which the United States is at present engaged.

(7) A copy hereof shall be served upon each of the railroad or railway companies and upon each of the producers of bituminous coal named in the list marked "Exhibit 1 to the Tidewater Coal Exchange Transshipment Order of the U. S. Fuel Administrator, dated Nov. 6, 1917."

The order was signed by H. A. Garfield, who was then U. S. Fuel Administrator.

Hines Outlines New Distribution Policy

Coal To Be Diverted Only When Urgent—New Regional Committees Appointed—New England Receives Immediate Attention

COAL is to be diverted in the future only in cases of the most absolute necessity. New committees have been appointed by the Director General of Railroads to look after the diversions in the different regions. The Central Coal Committee at Washington is simply to continue its supervision over the general control of fuel movements through the regional committees.

Director General Hines outlined the new policy in a statement issued March 5. It is as follows: I am advised that in the Eastern section of the country and in New England particularly the severe weather conditions continue to interfere to a large extent with railroad operations, which is materially affecting the movement of coal from the producing sections to the consumers. The coal strike in November and December resulted in a shortage of approximately 50 million tons of bituminous coal. Although during the week ended Feb. 28, 1920, 10,250,000 tons of bituminous coal was produced and transported and although the production and movement of bituminous coal so far in 1920 has considerably exceeded the production and movement in the same period in the three preceding years, it is a fact that demand it still considerably in excess of the supply.

To Give New England Attention

As a result the Director General has received representations from a number of Public Utilities, schools, domestic consumers and industries that they are unable to purchase coal to meet their urgent needs, and that they will have to cease operations unless they promptly secure coal. To assist the New England situation and because weather conditions have made it impossible to move much coal to New England by rail, a large amount of coal has been diverted to New England by water. This movement will be continued.

In Executive Orders dated Feb. 28 and March 5 the President, in order to meet this situation, has continued in the Director General of Railroads authority to direct the distribution of coal to the extent necessary to meet the urgent needs of public utilities, railroads and other domestic consumers. Acting on the authority thus continued, the Director General has today sent out instructions to Regional Coal Committees under his authority in the Eastern section of the country for the purpose of effecting the absolutely necessary diversions of coal.

These committees have been instructed that diversions of coal under this authority be kept at an absolute minimum and cease entirely as soon as possible. All applicants for coal should exhaust all possible means for securing coal through the normal channels since the power to divert will only be exercised to meet emergencies. The instructions of the Director General places authority in the hands of the designated committees to make the necessary diversions. While the Regional Committees will continue to work under the general directions of the Central Coal Committee, Railroad Administration, Washington, D. C., applications for diversions of coal will not be forwarded to the Central Coal Committee but will be dealt with directly by the Regional Coal Committees.

New Regional Committees

The territory over which the regional committees will have jurisdiction and the chairmen of the different committees are as follows: Eastern Regional Coal Committee with headquarters in New York, with jurisdiction on the lines of the railroads which comprised the Eastern Region of the U. S. Railroad Administration, G. N. Snider, chairman.

New England District Coal Committee, with headquarters in Boston, Mass., with jurisdiction on the lines of the railroads which comprised the New England District of the Eastern Region of the U. S. Railroad Administration, W. T. Lamoure, chairman, and James J. Storrow, vice-chairman.

Ohio and Indiana District Coal Committee, with headquarters at Cincinnati, Ohio, with jurisdiction on the lines of the railroads which comprised the Ohio and Indiana District of the Eastern Region of the U. S. Railroad Administration, H. A. Worcester, chairman.

Detroit Committee, with headquarters at Detroit, Michigan, with jurisdiction over Detroit and Toledo Terminals and in the state of Michigan, P. G. Findlay, chairman.

Cleveland Committee, with headquarters at Cleveland, Ohio, with jurisdiction over Cleveland and Terminals, E. R. Bissell, chairman.

Allegheny Regional Coal Committee, with headquarters at Philadelphia, Pa., with jurisdiction on the railroads which comprised the Allegheny Region of the U. S. Railroad Administration, Samuel Porcher, chairman.

Pocahontas Regional Coal Committee, with headquarters at Roanoke, Virginia, with jurisdiction on the railroads which comprised the Pocahontas Region of the U. S. Railroad Administration, D. E. Spengler, chairman.

H. B. Spencer, who was Director of the Division of Purchases of the Railroad Administration, has accepted a position as head of the Washington office of a private concern which is operating a refrigerator-car line.

Wholesalers Seek Injunction Against Railroad Administration

Cushing Criticizes Government Control — Fuel Control Redelegated Too Many Times— Unintelligent Diversions Made

AN injunction is being sought by the American Wholesale Coal Association against the Director General of Railroads in the matter of diversion of coal. The case is brought in the name of Swayne & Co., Noah H. Swayne 2d, of Philadelphia, who trades as Swayne & Co. He is the president of the American Wholesale Coal Association.

George H. Cushing, the managing director of the American Wholesale Coal Association, in analyzing the case, states that one allegation in the bill is that the President's control over coal, as granted by the Lever law, has been delegated and redelegated too many times and that the coal industry is no longer regulated by the Government in the public interest.

Instead, anyone who uses coal and wants to confiscate what he wants, can get and use the President's powers under the Lever law. Specifically, it is and will be shown the President delegated his authority to Dr. H. A. Garfield; Dr. Garfield redelegated it to the Director General of Railroads; the Director General of Railroads gave it to the Central Coal Committee; the Central Coal Committee passed it on to Regional Committees. The Regional Committees transferred it to Federal Managers, the Federal Managers allotted it to their fuel agents; and the fuel agents used this authority to get coal for some of their friends along the railroad. The bill questions the legality of such frequent delegations of the President's power.

Divertee Paid Only Production Cost

A second allegation is that those who thus regulated coal in their own interest assumed still in their own interest to divest the owners of coal of their title to it. The owner of the coal who had paid cash for it had his property taken away and the title went back to the person who produced it. This eliminated, contrary to the constitution, the title and right of the retailer and wholesaler. It left the divertee—mainly the Railroad Administration—to pay only the production cost of that coal.

The allegation in the bill is that such divestment of title is unconstitutional since the courts have held frequently that when a man's property is taken, he must, under law, be put in the same position as though his property had not been taken.

The third allegation is that an organization—the Central Coal Committee—consisting of three men and two clerks, has tried to distribute about two million tons of coal per day. They had no force adequate to investigate either the truthfulness of statements of coal users or to determine whether the man, whose coal was taken, needed it as badly as the man to whom it was being given. In practice, this unintelligent interference set up a system of robbing Peter to favor Paul. When that had been done it was necessary to rob John to save Peter, and to rob Samuel to reinstate John in his rights. One unintelligent diversion gave rise in time and necessarily to ten unintelligent diversions and the result has been to create the impression of a coal famine, when production daily, weekly and monthly was, and is adequate.

The fourth allegation is that, under this system, men who have spent their money to finance the coal mines during the recent strike had to sit by while their funds were tied up by the Railroad Administration which worked under rules that made it impossible for them to recover what they actually had spent for coal, to say nothing of collecting enough additional to pay their cost of doing business.

At the end of the petition, the plaintiff requests that the court establish a commission to settle claims between the owners of the coal and the divertees. They also ask that the Director General of Railroads be ordered to show cause why an order should not be issued restraining him from further illegal interference with their business.

While this suit is filed in the name of Swayne & Co., it is specified in the bill that it is in behalf of the 600 members of the American Wholesale Coal Association. It requests the Supreme Court of the District of Columbia to consider this as a test case and to allow the wholesalers to intervene as individuals to establish their rights.

The real purpose of the suit is to compel the Director General of Railroads and his agents to allow those who buy coal to actually get the coal they have bought and paid for. As the matter now stands, it is impossible for any coal man to make a sale to a retail dealer, a public utility company or to a factory and guarantee that that coal will be delivered.

Another purpose of the suit is to stop practices such as the following:

Endless Chains Developed

(1) Some time ago the Central Coal Committee was asked to divert 75,000 tons of coal to the New York Edison Co. and the Interboro Rapid Transit Co. of New York. The request was granted without an investigation. It developed later that 60,000 tons of this coal was moving, when seized, to the Boston Edison Co.

To allow the Boston Edison Co. to get its coal, the Central Coal Committee then seized 60,000 tons from other wholesalers. It later developed that this 60,000 tons of coal was moving to other utilities companies located up and down the Atlantic Coast, and it became necessary to divert to these concerns 60,000 tons of coal moving to other wholesalers—an unending chain.

(2) The Fuel Administrator for Canada petitioned for 50,000 tons of coal. That quantity was seized while standing in the railroad yards of Buffalo, N. Y. After it had been shipped into Canada, it was found that it was all a high grade of gas coal moving to the gas plant at Buffalo. To satisfy the Buffalo Gas Plant, it was necessary to seize and divert 50,000 tons of other coal, but the coal actually seized was not fit for gas making.

(3) The Newberry Plant of the American Steel & Wire Co. at Cleveland, Ohio, petitioned for coal and got it, but it was found that after this coal was diverted it was taken away from the Wickwire Steel Co. of Buffalo, N. Y., the immediate competitor of the American Steel & Wire Co. of Cleveland.

(4) Within the last two weeks, coal that was moving to retail dealers in northern Ohio and Michigan, to satisfy household demands, was diverted to the McKinney Steel Co. at Cleveland.

(5) As showing the business difficulty confronting the petitioners, documentary evidence will be submitted to the court showing that the Chicago, Rock Island & Pacific R.R. received and used 3,630 cars of coal. Three months later it was still unable to find who produced or owned that coal, and hence who to pay for it. Also, the Illinois Central received and used 3,000 cars of coal under exactly similar conditions. These two railroads found it necessary to print and circulate among the members of the coal trade, lists of these cars asking coal men to come forward and prove ownership of the coal.

There was involved in these two instances alone at least 325,000 tons of coal, valued, at least at one million dollars. Yet, the railroad had burned the coal but did not know three months afterward who should be paid for it. The petitioners believe they are justified in asking the court to relieve them at once from the burden of such unintelligent and illegal interference with their business.

Colorado Operators Mine at a Great Loss Under Present Conditions

FOLLOWING a short hearing for the consideration of the anthracite situation the Frelinghuysen Coal Investigating Committee will make its report to Congress. Senator Frelinghuysen states that he is going to do all within his power to submit the report at the earliest possible date.

E. H. Weitzel, manager of the Fuel Department of the Colorado Fuel and Iron Co., was the last witness to appear before the Frelinghuysen Committee. He submitted extensive data with regard to the situation in Colorado, but placed most of his emphasis on matters relating to the price of coal and to wages. He declared that the operators in Colorado can not sell coal at the present government price without very great loss. He also attempted to demonstrate that coal miners in Colorado are able to live up to American standards without the fourteen per cent increase.

Mr. Weitzel explained that the mines of his company are maintained on open-shop basis and that the industrial representation plan which has been adopted by the company and the employees is operating satisfactorily. To demonstrate that he presented a resolution adopted by the employees of the Colorado Fuel and Iron Co. just prior to the Central Competitive strike, in which they announce their intention to continue with the industrial representation plan and denounce the strike order as being unfair. It was stated that only seven men refused to sign the resolution, and that the employees themselves ejected these seven from their camps.

Mr. Weitzel explained that in addition to supplying Colorado, Nebraska, Kansas, Oklahoma, and Texas are dependent to a considerable extent upon Colorado coal. He called attention to the inability of his company to continue to supply coal at government prices when, with the present wage scale an average loss of 31.7c. per ton is being suffered. In that connection Mr. Weitzel said:

"Our cost of production in the coking and steam mines in 1919 was exactly the government price of $2.70. The profits on domestic mines averaged 9.7c. per ton in 1919. With the increase of 14 per cent in labor costs and selling at the government price for lump, nut, and slack we will have a loss in 1920 of 16.8c. per ton on the domestic coal. Our total labor bill was $5,944,491.45 for 1919. An increase of 14 per cent on that will show what the extra burden is. It means an additional charge on the consumer of at least 40c. a ton."

To show that the mine workers in Colorado have a comfortable living wage Mr. Weitzel pointed to the large percentage of them who own automobiles.

Mine Rating and Car-Distribution Rules To Be Continued

UNIFORM mint rating and car distribution rules established by the Railroad Administration are to be continued unless some carrier should do the unexpected thing and challenge the following suggestion which has been promulgated by the Interstate Commerce Commission.

The supply of cars available for the transportation of coal is insufficient to meet the demand. Unusual movements incident upon the strike of coal miners has brought about an abnormal location of cars. It is desirable that the proper relocation of cars shall be brought about as rapidly and with as little confusion as is possible. Critical situations still exist in which fuel for essential industries and purposes must be provided.

To the end that conflicting and contradictory rules on different roads and in different fields may be avoided in the unusual conditions which now exist in the industries and on the roads, the Commission recommends that until experiences and careful study demonstrate that other rules will be more effective and beneficial and especially during the remainder of the early spring the uniform rules as contained in the Railroad Administration's Car Service Circular CS-31 (Revised) be continued in effect.

Fuel-Briquetting Industry Also Affected in 1919

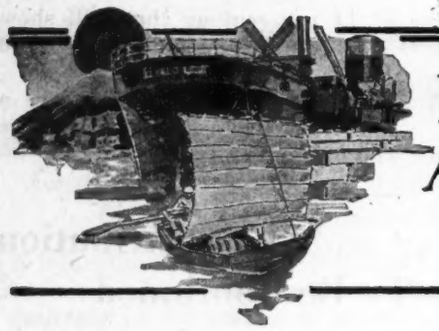
Like the entire coal-mining industry, the manufacture of fuel briquets was adversely affected by the period of readjustment which followed the armistice. The total production of fuel briquets in 1919 was 296,000 net tons, a decrease of 182,000 tons, or 38 per cent, when compared with the preceding year. In fact, the output fell far below even that of 1917, reaching almost exactly the level of the pre-war year, 1916.

The value of the briquets produced in 1919 was $2,301,000. In 1918 the value was $3,213,000, and in 1917, $2,234,000. Twelve plants operated during the year, five in the Eastern States, four in the Central States, and three on the Pacific Coast. The fuels used included 104,000 tons of anthracite culm and fine sizes, 112,000 tons of semianthracite and bituminous coal, and 80,000 tons of lignite and petroleum residues.

Repeal of Lever Act Sought

Sentiment in Congress for the repeal of the fuel provisions of the Lever act has become sufficiently strong that it is probable that serious consideration will be given in the near future to legislation looking to the repeal of the fuel provisions.

Representative Tilson of Connecticut has taken the lead in the matter. He is a member of the Ways and Means Committee and is in a position to exert considerable influence on behalf of his proposal.



FOREIGN MARKETS AND EXPORT NEWS

Coal Concession Granted by China

More details of the concession from the Chinese Government granted to the Chinese Engineering and Mining Co. have been given at the recent stockholders' meeting. Chairman W. F. Turner said in a statement made in *The Sun and New York Herald* of Feb. 11:

"You may have seen in the newspapers a cablegram from China stating that a preliminary agreement has been entered into by the Kaiian Mining Administration with the Shansi government for the working of mines in the province of Shansi. The agreement in question refers to the Tatung coal field. It is essentially of a preliminary character, and the effect of it is that, in the first instance, a careful investigation will be made of the character and resources of the field, and everything will depend upon the results of that investigation.

"The position of the field is good; it is situated to the west of Kalgan and close to Peking-Kalgan-Suiyuan Ry., which is approximately several hundred miles to the west of Peking. The coal is said to be of good quality and to exist in large quantities. It is too early to say more on this subject, but there would appear to be large possibilities involved. There are other matters under consideration which are not sufficiently advanced for discussion; I have dealt with those which are of most immediate interest.

"You will have realized that we have entered on a period of great expansion, and that the future of the business controlled by the Kailan Mining Administration is not only of interest to ourselves and our associates, but is becoming a considerable factor in the industrial development of China."

Vast Coal and Iron Resources in New South Wales

New South Wales has large deposits of iron ore (53,000,000 tons awaiting treatment) in close proximity to vast beds of a superior coal, states the New South Wales Information Bureau of New York City. Both classes of deposits are being worked more extensively each year. In 1917 the coal mined amounted to 8,292,867 tons, of which 5,000,000 tons were used within the state — almost exclusively for industrial purposes, as the mild climate of Australia requires very little fuel to be employed for the heating of buildings.

The coal beds of New South Wales cover about 16,550 square miles—in three districts: Northern, Southern and Western. The main lines of railways pass through the districts where the deposits are most easily worked. Newcastle, famous throughout the world, is a port near Sydney, and at the heart of the Northern coal district, which furnishes sixty-five per cent of the coal that is mined in the state.

Two hundred and forty-four million tons of coal, valued at $480,000,000, have been mined to date in New South Wales.

It is conservatively estimated that there are over 115,300,000,000 tons of coal still available to be mined in New South Wales. This represents an asset to the State of New South Wales of over $175,000,000,000.

Danzig Received Two-Fifths of Its Coal By Sea

Before the war Danzig received about two-fifths of its coal supply by sea and the remainder by rail, states *Commerce Reports*. During the war the sea supply was largely cut off, but there was an increase in incoming rail shipments, as is shown by the following figures for incoming and outgoing shipments in 1913 and 1918:

Items	1913 Metric Tons	1918 Metric Tons
Incoming by sea from		
United Kingdom	130,348	.....
America	510	.....
Dutch and Belgian ports	33,536	.....
German North Sea ports	22,790	52,238
Rhine region	29,284	.....
Baltic ports	2	.....
Total by sea	216,470	52,238

Items	1913 Metric Tons	1918 Metric Tons
Incoming by rail (chiefly Silesian coal)	339,678	505,480
Shipped out:		
By river	79,320	113,241
By rail (chiefly to East and West Prussia)	81,344	48,241

The foregoing figures do not include coke or briquets.

According to customs returns, incoming shipments of petroleum by the sea route amounted in 1913 to 45,068 metric tons, of which 23,263 tons came from the United States and 15,517 tons from Russia. No petroleum appears as received in 1918.

Ruhr Daily Output Slightly Improved

During the 24¼ working days in December, states the *Colliery Guardian*, the Ruhr coal output amounted to 6,471,130 tons, as compared with 6,172,248 tons in the 23¾ days of the previous month, and 9,075,000 tons in December, 1913, the decrease in comparison with the latter being 28.7 per cent.

The output for the whole year was about 70 million tons, against 95.97 million tons in 1918, and 114.56 million tons in 1913, a decrease of over 44 million tons, or 48.6 per cent, although the number of miners has increased by 50,000. The output per diem is, however, improving slightly, being 257,256 tons in October last, 265,473 tons in November, and 266,850 tons in December.

Distribution was fairly good in the existing state of affairs, and towards the end of the month the wagon shortage had practically disappeared, this, however, being partly due to the fact that many works extended the holidays in consequence of the short supply of coal in hand and thus required fewer wagons for the time being. The favorable state of the river previous to the recent overflow also facilitated coal traffic to South Germany.

The new year has opened badly for the local coal industry, and the combined effects of the floods and the railway strike will long be felt. Still worse will be the result of the six-hour day, which is to come into operation on Feb. 1, and is calculated to give the finishing touch to the economic existence of the nation.

Boring Operations Begun in Brisbane

Boring operations for coal were recently begun on Crown lands between Torbanlea and Colton, in the Howard district, and so satisfactory was the result that a start has been made at sinking a shaft.

It is intended that the State of Queensland have its coal mines in three sections of the state, so that it may become independent of private enterprises.

Would Cancel Norwegian Coal Bids

The shipowners organization of Christiania, Norway, has asked the Norwegian Government to make an effort to cancel the American coal contracts, which call for 35,000 tons monthly.

The cancellation is desired in order to ease the heavy demand upon tonnage.

Tidewater Shipments, By Ports, 1918 and 1919

Through the courtesy of the Tidewater Coal Exchange the Geological Survey is able to publish the following summary of bituminous shipments to the principal North Atlantic ports in 1919. The striking features of the year were the increase in the tonnage of foreign export and bunker, and the decrease in the movement to New England. The total movement to tide declined from 42,908,522 net tons in 1918 to 37,061,817 tons in 1919. Two of the ports, Charleston and Philadelphia, increased their tonnages; at the other three a decline occurred. Hampton Roads remains the greatest coal port of the country, with New York second. Philadelphia passed Baltimore during the year, and is now third in rank.

TIDEWATER SHIPMENTS TO NORTH ATLANTIC PORTS, 1918 AND 1919(*a*)
(Net Tons)

Harbor	Inside Capes and Bunker	New England	Foreign	Bunker	Other(*b*)	Total
New York:						
1918	.....	3,946,368	28,222	2,573,443	10,542,700	17,090,736
1919	.....	2,510,497	10,348	2,659,030	9,054,362	14,234,237
Philadelphia:						
1918	2,006,025	548,014	90,570	420,057	56,290	3,120,956
1919	2,069,043	492,405	1,140,077	677,498	31,882	4,410,905
Baltimore:						
1918	1,108,532	1,991,184	112,376	387,927	41,446	3,641,464
1919	775,552	129,311	1,771,562	610,335	180,510	3,467,270
Hampton Roads:						
1918	1,358,591	8,756,011	3,499,579	2,648,634	2,713,861	18,976,676
1919	584,912	5,233,612	5,183,712	2,837,007	789,889	14,629,132
Charleston:						
1918	2,584	6,552	10,003	32,938	26,613	78,690
1919	8,346	19,557	186,715	90,049	15,605	320,273
Total:						
1918	4,475,732	15,248,129	3,740,750	6,062,999	13,380,910	42,908,522
1919	3,437,853	8,385,382	8,292,414	6,873,919	10,072,248	37,061,817

(*a*) As reported by the Tidewater Coal Exchange.

(*b*) Consists, for New York, of water shipments to New York and New Jersey points located around New York Harbor, plus a small tonnage for Army and Navy; for other ports consists largely of coal for Army and Navy.

Belgian Coal Production

Consul General Henry H. Morgan, Brussels, on Dec. 23, 1919, states that coal production in Belgium for October, 1919, increased in all mining districts compared with the month of September. It is to be noted that October included one more day of work than the month of September. For the whole region the increase was 11.8 per cent of the production for September; for the Mons fields it was 11.7 per cent; for the Centre, 13.7 per cent; Charleroi, 12.3 per cent; Namur, 5.9 per cent; Liege, 9.4 per cent; and Campine, 46.5 per cent. In the latter field there was a strike in September. The production in the Campine was 13,540 tons in August and in September 11,870 tons.

The total number of surface and pit miners was 149,842 in October, compared with 144,922 in September, an increase of 4,920, or 3.4 per cent. Stock during October decreased 167,145 tons.

The following table gives the October, 1919, net production of coal (including that consumed in the pits), the stocks at the end of the month, as well as the average number of employees, surface and pit, for each of the coal districts, and for all the coal mines of the country. Production for the kingdom was 1,884,740 tons.

Coal Basins and Fields	Production Net Tons	Stocks at End of October Tons	Average Number of Miners Employed At Pit	On Surface	Total
Hainaut:					
Fields—					
Mons	421,610	104,570	25,066	10,257	35,323
Centre	318,155	50,481	17,650	7,282	24,932
Charleroi	640,695	414,704	31,384	16,339	47,773
Namur	50,200	37,100	2,743	1,272	4,015
Liege	436,720	58,300	25,553	10,637	36,130
Limbourg	17,360	1,380	1,004	655	1,669
Kingdom	1,884,740	666,535	103,400	46,442	149,842

The following table gives the coal production for the normal year 1913, compared with the 1919 production:

Coal Basins and Fields	Average Monthly Production in 1913 Tons	Production in October, 1919 Net Tons	Production in October, 1919, Compared with the 1913 Monthly Average Per Cent
Hainaut:			
Fields—			
Mons	364,200	421,610	115.0
Centre	303,830	318,155	104.0
Charleroi	679,000	640,695	94.3
Namur	65,420	50,200	76.7
Liege	498,260	436,720	89.6
Limbourg	.....	17,360	.....
Kingdom	1,910,710	1,884,740	98.6

Lianelly Coal Market Maintains Its Firm Tone

A recent issue of the *Colliery Guardian* states that the local market maintains its firm tone, and collieries are very busy coping with the heavy demand. Pits are working good time on the whole, although in some cases idle days are reported through shortage of wagons. Shipping is very busy, and a good number of vessels are waiting loading turns.

Inland deliveries are also being well maintained, but the demand is heavy. All anthracite coals are well placed, with more orders offering than collieries can accept. Large kinds are very difficult to secure, and the machine-made grades very scarce. Culm and duff are strong, with a good demand ruling.

Steam coals are also very firm, and outputs well stemmed ahead. Large and through are scarce, and smalls well enquired for, particularly the better grades.

Swansea Coal Trade Unsatisfactory

The trade of the port during the past week was by no means good, only 42,176 tons of coal and patent fuel being exported, states the *Colliery Guardian*. A good attendance assembled on Change today, and all classes of coal were in very pressing demand, but, as has been the case for the past few weeks, little business seemed to be possible, owing to the already heavy bookings.

The market, generally speaking, is very firm and difficult, owing to the continued falling out of position of tonnage through bad weather, and at the same time there is a heavy list of boats in the port, caused by congestion on the railways, and in consequence very slow at the tips.

No Marked Change in Nottingham

There is no marked change in the condition of the trade in this county, states the *Colliery Guardian*. Despite the fact that the output shows some improvement, the general demand is active. There is every indication that the shortage in the house-coal section so far as local merchants' supplies are concerned, will be abated to some extent shortly, and already supplies are coming to hand rather more freely.

The position in this respect was becoming acute, many householders, being without fuel, having to get permits to obtain small allowances from the fuel overseer. Steams continue in active demand, and collieries readily dispose of all available supplies.

Foreign Freight Rates

From W. W. Battle & Co's coal trade freight report of Feb. 19, 1920, the Shipping Board's rates by steam are as follows:

	Rate	Tons Displaced
Genoa/Leghorn	$26.50 —	1,000
Spezia/Savona	26.50 —	1,000
Piraeus	28.50 —	1,000
Trieste/Venice	31.00 —	800
Algiers	26.00 —	800
Cadiz/Bilbao	23.50 —	1,000
Barcelona	26.00 —	1,000
Antwerp/Rotterdam	22.50 —	1,000
Lisbon	22.50 —	1,000
Gothenburg	24.00 —	1,000
Marseilles	26.00 —	1,000
Stockholm	26.00 —	800
Hamburg	25.00 —	1,000
Rouen	23.00 —	1,000
Malmo	25.00 —	800
Pernambuco	16.00 —	500
Bahia	16.00 —	500
Rio	17.00 —	1,000
Santos	18.50 —	600
Rio Grande do Sul	19.50 —	500
Buenos Aires or	16.00 —	1,000
La Plata or	or	
Montevideo	17.50 —	750
Rosario	19.00 —	750
Bahia Blanca	17.50 —	1,000
To Nitrate Range	12.00 —	1,000
Havana	7.50 —	600
Sagua or Cardenas	9.00 —	300
Cienfuegos	9.00 —	500
Caibarien	9.50 —	300
Guantanamo	9.50 —	300
Guantanamo	9.00 —	400
Manzanillo	9.50 —	300
Bermuda	9.00 —	300
Bermuda p.c. and dis.	free	
Kingston	9.50 —	400
St. Lucia	11.00 —	500
Barbados	11.00 —	500
Santiago	8.50 —	500
	9.00 —	400
Port of Spain, Trin	11.00 —	500
Curacao	10.50 —	500
Free p.c. Curacao		
Demerara	13.00 —	400
St. Thomas	10.00 —	500

All above rates gross form charter.

Coal and Coke Exports During December, 1919

Coal and coke exports for December, 1919, as reported by the Department of Commerce by countries and customs districts are as follows:

Countries	Coal—Anthracite 172 Tons	Coal—Bituminous 173 Tons	Coke 174 Tons
Austria-Hungary	5	.....	.....
Denmark	.....	30	.....
France	30	2,918	.....
Germany	20	3	.....
Italy	318	11,040	500
Portugal	25	.....	.....
Canada	338,828	208,691	26,695
Guatemala	.....	5	.....
Honduras	801	500	4
Panama	.....	16,300	.....
Mexico	418	8,489	14,826
Newfoundland and Labrador	315	5,511	.....
Trinidad and Tobago	.....	7,318	.....
Cuba	3,168	57,478	1,259
Danish West Indies	.....	5,120	2
Dutch West Indies	.....	7,035	.....
Dominican Republic	1,424	160	2
Argentina	.....	.....	1
Brazil	.....	4,590	20
Chile	50	4,226	.....
Colombia	.....	150	.....
Peru	.....	.....	11
Egypt	.....	1,500	.....
Total	345,402	341,064	43,320

Customs Districts	Coal—Anthracite 172 Tons	Coal—Bituminous 173 Tons	Coke 174 Tons
Maine and New Hampshire	258	39	304
Vermont	1,841	330	.....
Massachusetts	410	4	.....
St. Lawrence	100,694	43,595	3,175
Rochester	6,003	15,933	600
Buffalo	223,926	58,722	15,056
New York	4,871	3,591	524
Philadelphia	2,041	2,273	.....
Maryland	.....	2,231	.....
Virginia	.....	92,876	.....
South Carolina	1,458	21,398	.....
Florida	.....	860	.....
Mobile	.....	.....	1,259
New Orleans	838	505	54
Sabine	.....	.....	37
San Antonio	215	403	.....
El Paso	187	1,706	4,124
Arizona	.....	6,349	10,623
Southern California	3	16	.....
San Francisco	.....	1	2
Washington	1	71	.....
Alaska	.....	1	.....
Dakota	381	2,637	241
Duluth and Superior	2,225	7,005	69
Michigan	50	47,765	6,799
Ohio	.....	32,593	361
Porto Rico	.....	160	2
Total	345,402	341,064	43,320

BUNKER COAL

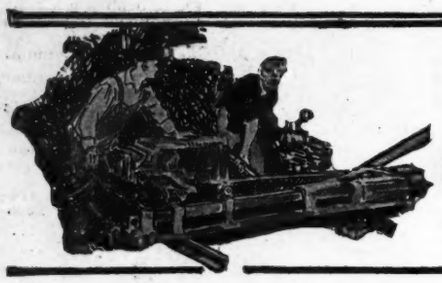
Customs Districts	Tons
Maryland	28,338
New York	226,178
Philadelphia	32,967
Virginia	90,175

Chesterfield Coal Pits Working Steadily

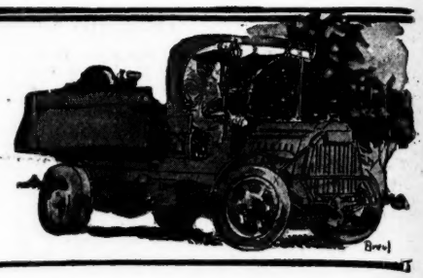
All the pits of the district are working steadily and the output of coal shows an upward tendency which, states the *Colliery Guardian*, is encouraging as far as it goes. The increase is, however, very slight, and has no appreciable effect upon the quantity available for distribution. The demand continues strong, but supplies continue far below the requirements of the country. The pressure for coal for household purposes is great and orders for this class of fuel are considerably in arrear.

The scarcity of railway wagons is serious and is interfereng very much with colliery operations. There is an active demand for coal for manufacturing purposes, which is difficult to meet, particularly in respect of cobbles and nuts for gas producers. Slack for steam raising is also in great request. The pressure for gas coal and locomotive fuel is very great.

Much attention is being given to the export trade. As soon as the car distribution is in a better condition, operators in this district will find a good market for their entire output.



COAL AND COKE NEWS



What Happened in February

[The bracketed figures in the text refer to the number and page of the volume in which references to the matter noted may be found and should the reader desire further information he can obtain it in the place indicated.]

Feb. 2—Attorney Crews, of New York, submits data to the President's Coal Commission on behalf of the coal operators.

Feb. 3—Representatives of the miners and operators sum up the points in controversy in the investigation by the President's Coal Commission [XVII, 318].

Feb. 4—New River Operators' Association decides to restore the "check-off" system, at a meeting at Charleston, W. Va. When this decision is reached, representatives of miners of district 29 of United Mine Workers of America are called in and a joint meeting is held. An agreement is adopted which ends New River strike [XVII, 358].

Feb. 6—Governor John J. Cornwell, of West Virginia, delivers an address at Bluefield, W. Va., on the subject of past and possible future coal strikes. In connection with an attempt to unionize West Virginia, he said his duty was to see that peace was preserved and the rights of the public respected.

Feb. 6—The International Executive Board of the United Mine Workers of America accepts the resignation of Frank J. Hayes, as president of the union. Acting president John L. Lewis is put in his place [XVII, 316].

Feb. 9—The President's Coal Commission enquires into conditions in the bituminous mountain districts of Colorado, Wyoming, Montana and Washington [XVII, 359].

Feb. 10—President's Coal Commission names committee of five to consider question of price to charge for coal, as follows: John P. Cameron, central Pennsylvania operator, chairman; C. E. Lesher, direcetor statistics, National Coal Association; Percy Tetlow, statistician United Mine Workers; P. M. Reynolds and Paul White.

Feb. 11—James D. Simpson, general superintendent of Berwind-White Coal Co., dies at his residence in Windber, Pa. [XVII, 423].

Feb. 14—R. M. Lambie succeeds W. J. Heatherman as Chief of the Department of Mines of West Virginia [XVII, 459].

Feb. 17—Van H. Manning addresses American Institute of Mining and Metallurgical Engineers, on subject of "Problems of the Coal Industry," at New York meeting [XVII, 396, 397, 398]—George Otis Smith delivers address, prepared by him in collaboration with F. W. Tyron, on subject of "Fluctuations in Coal Production—Their Extent and Causes." Delivered before American Institute of Mining and Metallurgical Engineers at the New York meeting. Discussion follows. [XVII, 399 to 407 inclusive]—A meeting is held at New York, at which is formed the Tidewater Transshippers' Association. It will replace the Tidewater Coal Exchange. A tentative set of principles is presented and adopted [XVII 451, 452]—Representatives of Public Utility Associations appear before the President's Coal Commission [XVII, 463]—The President's Coal Commission begins hearings of the public's side of the coal situation being investigated [XVII, 358].

Feb. 17 and 18—The American Institute of Mining and Metallurgical Engineers holds session at the Engineering Societies Building, New York City. H. C. Hoover is elected president of the institute [XVII, 408 to 411 inclusive].

Feb. 18—American Institute of Mining and Metallurgical Engineers, the New York meeting: Edwin Ludlow reads a paper on "To Conserve Coal for Future Generations." Discussion follows [XVII, 442, 443, 444]—Eugene McAuliffe reads a paper on, "Stabilizing the Market."—Prof. H. H. Stoek reads paper on, "Coal Storage." Discussion follows.

Feb. 21—Pocahontas Operators' Association holds its annual meeting at Bluefield, W. Va. Officers are elected [XVII, 469].

Feb. 25—President Wilson signs coal and oil-land leasing bill, which throws open 6,700,000 acres of oil lands and 30,000,000 acres of coal lands with 39,000,000 acres of coal lands still to be classified [XVII, 462].

Feb. 26—Director General of Railroads submits report to U. S. Senate, in response to recent resolution by Senator Frelinghuysen, as to authority of the Administration over the distribution and export of coal [XVII, 460, 461].

Feb. 28—Operators urge the President's Coal Commission to recommend to Congress enactment of legislation making labor contracts legal [XVII, 465]—President Wilson provides for continuation of power of Fuel Administration as follows: Director General Hines of the Railroad Administration retains jurisdiction over domestic distribution. A commission will handle bunker and export coal matters. Commission includes: A. W. Howe, Rembrandt Peale, F. M. Whittaker and J. F. Fisher; commission will function through the Tidewater Coal Exchange, which is restored for that purpose. The order is effective until April 30, 1920. Mr. Hines' authority is extended beyond the date of the return of the railroads—Cummins-Esch railroad bill becomes law on the signing of the act by President Wilson.

Scranton, Pa.

Persistent effort being made to solve the mine-cave problem. Brief sketch of action taken during the last six months. One committee conferring with the operators. Another to bring about legislative action if necessary. Scranton citizens aroused. Results attained. Authority on constitutional law drafts bill to regulate future mining. Authority of Mayor to deal with mine-cave questions is outlined.

The mine-cave question has been an active one for years in this section, and while the agreement entered into between the corporations mining coal here and a body representing the citizens of Scranton met some of the requirements of an adjustment of the matter, it was not considered to be an entirely satisfactory solution of the mine-cave problem. Within a year after the signing of this agreement, the situation reached an acute stage when the Warburton boy was killed in a mine cave at Scranton last August. This matter was commented upon in the Aug. 21, 1919, issue of *Coal Age* in the "News" department. Action was demanded of local and state authorities. A grand jury returned an indictment to court charging involuntary manslaughter against certain coal-company officials. It is said that this is the first time that criminal action, commenced as the result of a death caused by alleged reckless mining, has resulted in an indictment.

A brief review of further action taken by Scranton citizens will give a clearer idea of the latest developments in the mine-cave controversy, from which tangible results are confidently expected. Following the demand for action, civic associations took up the matter with more deliberation, and at a meeting of representative men of this section in the Board of Trade rooms, an organization was formed uniting all civic bodies in a fight for elimination of the mine-cave menace. It was recognized that the agreement in effect between the Board of Trade and the coal companies did not solve the mine-cave problem entirely; while it was a step in the right direction, it must be broadened; failing in this, remedial legislation must be sought.

Committees were appointed at the Board of Trade conference of representatives of the various interests of the city and section. These committees are a part of the permanent organization effected to move in the mine-cave matter. A plea was made for united action and unanimity of purpose. An earnest effort was made to decide just what was wanted by the people, and to work out the details of a plan which would bring a practical solution. Among the committees formed was first a citizens' general committee; this body appointed two other committees as follows: A conference committee to carry on negotiations with the operators; and another committee to prepare bills for presentation at Harrisburg, should the expected conference with the operators prove fruitless.

In furtherance of better relations, last October an agreement was made with the officials of Scranton by the Delaware, Lackawanna & Western company in regard to damage done to property through mining operations. It provided for three men, appointed by the city and paid by the mining company, to act as guards in areas where disturbances are expected. Tenants of houses, which may be damaged by cave-ins, are to be notified of their danger, moved at the company's expense, their rent paid and their houses rebuilt for them in case they are destroyed as a result of mining operations.

In the last few months the conference committee appointed by the citizens' general committee, met the heads of the big anthracite mining corporations in New York City, at which time the whole situation was gone over thoroughly. As a result of these conferences, plans were formulated and the conference committee has held meetings with the local operating heads of the various mining corporations. Furthermore, a series of meetings have been held by the conference committee with members of the Scranton mine-cave commission, the purpose being to pick possible flaws in the present mine-cave agreement and to suggest to the operators signatory to it changes which would make it more satisfactory. These meetings tended to the development of a better understanding of the agreement in force; in addition several changes were unanimously agreed upon. The agreement should be enlarged, it is thought, to include any and all properties in its provisions; that the Delaware & Hudson Company be made a party to it, and that mining shall cease at once beneath the cemeteries.

Among the latest acts on the part of the citizens of Scranton in the mine-cave matter was the service rendered the community by the Scranton Surface Protective Association, in bringing William Draper Lewis to the city. He was formerly dean of the law school of the University of Pennsylvania and an authority on constitutional law. Mr. Lewis participated in a conference with the Mayor and the Mayor's cabinet. The Mayor's powers were outlined by Mr. Lewis in connection with his authority to act in meeting mine-cave questions. Mr. Lewis will also work on a local ordinance to regulate future mining, in the shape of a bill that will stand a constitutional test.

Interest also centers here on a quite recent request of the Mayor of Scranton, for an appropriation by the city council of $10,000, to be used in the employment of mining engineers, to make an examination of the mine workings underneath the city. This examination is to determine definitely just what mining is being done that is dangerous to the people of Scranton.

Pittston, Pa.

Pennsylvania Coal Co. plans to improve its Ewen and No. 14 collieries in South Pittston district. Cost $1,000,000. To sink new shaft. No. 7 shaft improved. To build modern steel and concrete breaker at No. 14 colliery.

The Pennsylvania Coal Co. is said to have completed plans for improvements at two of its collieries in the South Pittston district, that will cost $1,000,000. This development work when completed will expedite the handling of coal between the mine and the breaker, and will extend the life of the collieries.

The plans adopted for the Ewen colliery, in South Pittston, where a modern breaker was constructed last year, call for the sinking of a new shaft for the development of all the seams of the territory tributary to this colliery. The proposed shaft will be so located as to permit of the handling of mine cars by gravity to the breaker, and also avoiding long and expensive outside haulage. On completion of the new opening, the old Hoyt shaft will be discontinued as regards the hoisting of coal, but will be maintained for hoisting men and handling material and supplies.

Old No. 4 shaft will also be abandoned as an opening through which coal is hoisted, and the coal will be hauled underground to No. 7 shaft, which has only recently been sunk to a lower level and provided with modern hoisting equipment. When the contemplated improvements are completed, all coal from the various workings of the Ewen colliery will be hoisted through the two modern shafts. It is expected that the improvements will expedite the handling of coal and reduce haulage expense.

At the No. 14 colliery of the Pennsylvania Coal Co., at Port Blanchard, which is also in the South Pittston district, a new steel and concrete breaker will be erected at a cost of $750,000. This modern structure will replace the old wooden breaker which has been in use for 15 years. However, the machinery in the old plant is modern and will be used in the new breaker, which will prepare the coal from the six mine openings adjacent to this colliery. The construction of an electric power house to furnish current for the operation of the Ewen and the No. 14 collieries is said to be under consideration.

Charleston, W. Va.

Car supply 40 per cent of requirements. Weather conditions bad. Influenza also lowers production. High-volatile coal still being confiscated. Kanawha production half of normal, due largely to car shortage. However, influenza also influences output. New River works three or four days out of six. Heavy tidewater tonnage goes to New England.

During the week ended Feb. 28, the mines in this area produced not more than half their potential output, although at the outset of the week there was a somewhat larger supply of cars than usual. Averaging the week as a whole, aside from the Monday supply, the service reached only about 40 per cent of requirements. The car shortage was of course the chief factor in holding back production, as it had been throughout the month.

Weather conditions were anything but ideal for satisfactory mining operations, inclement weather tending to reduce the number of men reporting for work outside the mines. The same factor was also potent in holding back the movement of trains and even the distribution of empties, especially in view of the fact that motive power was deficient.

Another element contributing toward a lowered production was the influenza, which toward the latter part of the month was just beginning to reach mining centers in this section. While the percentage of deaths was small, nevertheless the malady had reduced working forces at many mines, the principal effect of which was felt of course when enough cars were furnished to make work possible.

Much high-volatile coal produced in this part of the state was still being subjected to confiscation, though probably not to as great an extent as during previous weeks, yet a large tonnage was being secured by the Chesapeake & Ohio, Baltimore & Ohio, Michigan Central, the Pennsylvania and other roads. Tidewater shipments were much lighter in volume than would have been the case had not the permit system still been in effect. The belief existed in some quarters that all roads were holding on to their own cars as much as possible, during the last few days before the roads went back to private ownership, owing to the higher per diem rates which would prevail after March first.

With the coal output of the Kanawha region still subject to confiscation, and with production not more than half of normal during the week ending the twenty-eighth, it was impossible for producers to keep up with the strong demand from all quarters. Not only were the railroads securing a large tonnage of coal on contract, but confiscation was frequent and consequently a large proportion of the output was going to the railroads. A shortage of cars of course played the most important part in limiting the supply available. The average output of mines during the last week of the month was about 50 per cent. The weather was far from being satisfactory not only as it affected mining operations but also in its effect on the operation of trains, the coal movement in consequence being extremely slow. The influenza still has a tenacious hold in a number of mining communities and is preventing mines from producing as much coal as would otherwise be the case.

Conditions Against New River

The car supply for the New River field during the last week of February hovered around 40 per cent just as it had during the earlier part of the month and production was, therefore, less than half of the potential capacity of the district as a whole; the car shortage figured as the chief factor in restricting production and in holding mines down to about three or four full working days during the final week of the month. Even the weather conspired with the car shortage to put a damper on production, a heavy snow falling throughout nearly the entire week. Also influenza was reducing the complement of miners at various operations to a greater extent than had been the case during previous weeks. While tidewater shipments were rather heavy, not much of such tonnage was being exported. It was being sent for the most part to New England and was also used in the coastwise trade.

Bluefield, W. Va.

Most serious car shortage for more than a year past. Small operators may have to suspend entirely. Causes large labor movement. Adverse weather conditions and insufficient motive power hamper transportation. Winding Gulf operates two or three days out of six. Pocahontas output lowest of recent months. Car famine in Tug River region.

At no time during the last 14 months has there been such a serious shortage of cars as was the case during the last week of February. The supply was slim enough during the week ended Feb. 21, throughout the regions in the southern part of the state. It was infinitely worse during the last week of the month. On the Norfolk & Western R.R., the car supply was not equal to more than 40 per cent of requirements; whether because of the fact that the road was holding cars, or because the road could not secure cars from connections, it is not known. Be that as it may the transportation problem was critical.

This shortage had quite a grave effect on small operations and it is stated that unless there is immediate relief, which is not regarded as being in sight, many small companies will be forced to suspend operations entirely. Larger companies also are suffering serious losses; even when cars were furnished, the larger companies were hardly justified in attempting to operate, because of the exceedingly small number of cars furnished.

Car Shortage Brings Labor Troubles

The continued car shortage has been responsible for a large labor movement from one mine to another, especially noticable during the last week of the month. Miners have deserted the smaller operations for the larger ones in the hope of securing more regular work. Because of this shifting about from mine to mine some of the smaller operations have almost been deserted. The continued shortage of cars is demoralizing the mining industry almost completely in the southern part of the state. Few mines here worked more than two full days during the week, or three days at the most.

Weather conditions were so unfavorable that railroad operations were carried on under difficulty. Furthermore with motive power not up to the requirements, neither the distribution of empties nor the movement of loads was very satisfactory.

There was a slight improvement in the car situation in the Winding Gulf district during the last week of February, some mines securing as much as a 60 per cent supply of cars, thus being able to work about four days out of the six. During the preceding week mines were being operated about two or three days out of the six.

While there is still much sickness among the miners in this field, yet it is not now seriously affecting the output, the largest part of which is being consigned to tidewater, although little of it is being shipped to foreign markets. The demand however, for Winding Gulf coal at the present time is unlimited.

Production sank to a lower level in the Pocahontas region, during the last week of February, than at any time in recent months, the car supply not amounting to more than 40 per cent of requirements. In fact the shortage of cars threatened to be of quite grave consequence to operations, especially to the smaller companies. If this shortage is long continued, it will force the smaller producing companies to suspend operations entirely.

During the last week of the month, operations both large and small were unable to work more than two days out of the week. The supply was so meagre that companies hardly felt warranted in resuming operations just to load the few cars furnished. It was most apparent on the line of the Norfolk & Western, that railroads in the West were holding on to just as many cars as possible. No improvements from a car-supply standpoint was in sight at the outset of March. Confiscation of coal on a wholesale scale was still being continued as February drew to a close, and furthermore it was believed it was being increased.

Car Famine on Norfolk & Western

Coal loading in the Tug River field, for the week ended Feb. 28, totalled 61,450 net tons; production, therefore, being slightly better than during the previous week but way below that of other weeks of February. Indeed, a number of the Tug River operators had less than one day's full run during the last week of the month, and at the begining of March the outlook was extremely discouraging.

Thus on March 2 at Williamson where empties are assembled for distribution to the Tug River and Thacker fields, there were only 75 cars of all classes on hand (including coke cars) whereas the normal number for distribution per day is from 1,200 to 1,600 cars. The situation has become critical, the car shortage is approaching an actual famine.

Shipments for export are still rigidly curtailed to provide for domestic consumption; shipments under license for export were (at the end of February) being heavily confiscated. Though shipped under license for export, the export price could not apply because of the fact that confiscation occured while the coal was under transit or even in the pools. Small shippers found it almost impossible to get a cargo assembled under such conditions.

Huntington, W. Va.

Losses outweigh output in Guyan fields. Production far below that of strike period. Near return of railroads to owners influences official announcement of new regulations.

With almost 490 more cars available during the wind-up week of February, than was the case during the previous week, mines of Guyan field were able to increase production to the extent of about 25,000 tons, the output running to about 186,000 tons. That was far below the level maintained during the strike period, however, and consequently losses were still outweighing production, exceeding 200,000 tons or something over 50 per cent of the potential capacity of the mines. Despite the gain in production, the car shortage is still seriously retarding production in the Logan field, and operators in that field look for little relief in the near future.

Confiscation of Logan coal seemed to be somewhat less general than it had been in previous weeks, owing perhaps to the fact that the Government control over the mines and railroads was not quite so complete on the eve of the return of the railroads to individual ownership.

New Railroad Regulations

New regulations promulgated just before the end of the month, had not been felt to any material extent in the field, although it was believed the continuance of Government control over prices would cause some resentment among operators. Cancellation of all export licenses, with the requirement that such licenses must be renewed, proved to be highly disconcerting and caused a good deal of confusion at the end of the month among operators who had coal ready for export.

Coal movement over the Chesapeake & Ohio system as a whole, during the final

week of January, was larger by 35,200 tons than it had been during the week ended Feb. 28. During the last week of January, 10,215 cars of coal, equivalent to 510,750 tons, had been handled; but during the last week of February a total of 10,919 cars or 545,950 tons were handled, the increase in the number of loads moved being 704.

Fairmont, W. Va.

Improvement but output still far below normal. About 400 to 600 cars available, 1,600 needed. Influenza spreads and curtails production. Coal goes West. Railroads absorb one-third of output of northern West Virginia fields.

The final week of February showed improvement over the previous week, from the standpoint of car supply, but there was still much to be desired by the mines in northern West Virginia. Production was still running far below normal. At no time during the final week of the month, however, were there as many mines idle as had been the case during the previous week.

There was a supply of about 1,100 cars on the Monongah division of the Baltimore & Ohio on Monday. During the remainder of the week the supply averaged from 400 to 600 cars. On other roads, however, even on Monday, the supply was below 50 per cent. Idleness at the mines reached its maxium on Tuesday in the Fairmont region when 135 mines were forced to suspend work because of absence of cars. From that time until Friday there were never less than 100 mines out of commission in the Fairmont field alone. It had been hoped to secure more cars on the Monongahela R.R. during the week by unloading slag, but few operators appeared to be anxious to enter into any such arrangement, two companies only co-operating.

Operations were curtailed in the last week of February to a larger extent than during recent weeks through the spread of the influenza. It had not assumed the proportions of an epidemic, but the malady had made its appearance during the week at a larger number of mines than during the earlier weeks of the month and had put many miners out of commission.

Considering the limited output, there was a fairly large movement of northern West Virginia coal to western points, particularly to Ohio and Michigan markets. On the other hand the tonnage destined for tidewater was rather light in volume. Virtually a third of the production of some of the northern West Virginia fields, however, was being absorbed by the railroads, particularly by the Baltimore & Ohio R.R. Northern West Virginia coal was being exported but in extremely limited quantities. By the time the railroads had secured enough coal to meet their requirements, there was a comparatively limited supply left for distribution to other consumers.

Birmingham, Ala.

Interesting test case in coal and iron ore tonnage tax matter. Suit against Republic Iron & Steel Co. Coal and iron ore not property until mined. Should not tax property twice. Tax arbitrarily discriminates between commercial and wagon mines.

Following a suit brought against the Republic Iron & Steel Co., by the state of Alabama last fall as a test case, pending the determination of which all tax payments were made under the coal and iron ore tonnage tax enacted by the legislature last summer, a brief has been filed in the supreme court which sets out a number of grounds for reversal, based solely on questions of law. The facts were agreed upon in the trial court and the only question to be decided is the constitutionality of the tax.

In the argument filed by attorneys for the Republic company they contend that: "Until they are mined, coal and iron ore are property only in a theoretical sense. Being incapable of use until they are mined, they do not become property until they are made available through mining, whether they be mined now or a thousand years hence. The tax, being not only measured by but predicated on the act of converting mineral as they lay in the ground into usable property, is inevitably on property. The tax is on nothing by the act of conversion, making personality realty.

"The right to own things without the right to use them is a conception unknown to and therefore without name in law. The word property includes not only the thing but the right to use and enjoy the thing.

"Coal and ore in place, whether owned separately from the fee or as part of it have been the subject of property taxes in this state since 1887 or earlier. To tax minerals through the years as they lay in the ground and then tax the act of taking them out, is to tax them twice."

"Furthermore, a discriminatory excise tax is offensive both to the state and federal constitutions. Thus, in levying the tax on those who mine coal and load it into railroad cars and not on those who mine coal and load it into wagons, is arbitrary and destroys the tax under schedule 66.

The attorneys also claim that, "the mining of its own coal and ore by the defendant, for use in its business of makjng and selling pig iron, is not an occupation or business. Not more so than is the defendant's transportation of these raw materials to the furnace, nor more so than any of its furnace operations."

Ashland, Ky.

Northeast Kentucky production little over half of capacity, due to car shortage. Chesapeake & Ohio mines lose tonnage; Louisville & Nashville mines gain. Return of railroads to owners and also return of equipment to proper lines, disturbs car supply. "Moonlight-schools" bill interests operators.

Mines in the northeast Kentucky field succeeded in making a net gain of 8,300 tons in production during the last week of February, the output reaching 135,990 tons or about 55 per cent of full potential capacity (249,000 tons), the total production loss being 113,405 tons. The car shortage represented 107,925 tons or 43 per cent of capacity. Mine disability and labor-shortage losses amounted to only 2 per cent. Mines on the Chesapeake & Ohio and branch lines produced a smaller tonnage of coal than during the week ended the twenty-first, the decrease being 4,000 tons; while on the other hand, the mines on the Louisville & Nashville worked during a much higher percentage of time, gaining 12,000 tons as compared with the previous week. During the corresponding period of 1919, the production was 99,133 tons or about a 50 per cent production losses at that time represented by "no market."

Operators in the northeast Kentucky field viewed with considerable apprehension, the return of the railroads to their owners. While it was true that the car pool was to be continued in a modified form, yet it was also true that the Chesapeake & Ohio was benefited by the use of foreign equipment under the pooling arrangement. Advice has been received that certain railroads, which own a relatively greater percentage of equipment than that which is furnished through the pool, are taking aggressive action toward the point of having the pool abolished, or at least to permit them to receive from the pool their proportion of the cars contributed to the pool.

It is also anticipated that in the return of the equipment to their owners, the Chesapeake & Ohio railroad finds itself at a distinct disadvantage, due to the great dislocation of shipments during the strike, when so much of its equipment was diverted far afield and has not yet been returned. On the other hand a great percentage of foreign equipment, that the Chesapeake & Ohio is now using, is claimed by railroads which connect directly with this system, over which a large proportion of the coal shipments are directed, so that these connecting lines will have an excellent opportunity to hold their individual equipment as soon as it is moved to their new lines.

The ultimate result will probably show a net loss to the Chesapeake & Ohio in available equipment and a corresponding loss in car supply to its mines. The only possible means of relief lies in the ability of the Chesapeake & Ohio, either to improve its transportation conditions, or to purchase the necessary additional equipment, the need of which the coal operators have brought to the attention of the railroad officials.

The car supply on the Chesapeake & Ohio during the last week of February, was such as to enable certain mines to demonstrate, by consecutive days' operations, their merits for proper increases in mine ratings; in certain instances some mines were able to show an ability to load, in three consecutive days, a 25 per cent greater supply than their rating provided.

During the months of January and February, there was a total production of about 1,000,000 tons and a total loss of about 1,000,000 tons. Of the coal loss the car shortage was responsible for about 95 per cent or 950,000 tons.

Operators of the northeast Kentucky field are quite interested in the bill, recently presented at Frankfort, proposing to appropriate $75,000 a year for the next two years for the continuance of the "moonlight schools," which have been conducted throughout the mountain sections of the state during the last few years. The coal industry of Kentucky, almost to a man, supports the bill.

PENNSYLVANIA

Bituminous

Rimersburg—One of the largest coal deals closed in Clarion County for some time was consummated this week, when Colonel Lloyd C. McCrum, Robert F. Beerits, John H. Beerits and Harry Siehl of Somerset, Pa., acquired the property of the Cherry Run Mining Co. located at Huey, on the Sligo branch of the Pennsylvania R.R., about three miles from here. The property consists of about 500 acres of coal land besides the mine and equipment. The Lower Kittanning seam is being worked and the annual production is 100,000 tons.

Brookville—Mines and coal-land holdings, the property of the Corbett Coal Co. in Porter Township, Jefferson County, have been sold to the Mill Supply Co., a subsidiary company of the New York *World* and the Joseph Pulitzer estate, the consideration being close to $1,000,000. The present output of the mines is about 1,000 tons per day and the acreage is, roughly, 1,000. The coal will be used for power at the mills manufacturing paper for use in the plant of the New York *World*.

WEST VIRGINIA

Welch—L. C. Long, mine inspector, H. R. Sloan, mine foreman, and J. H. Blankenship, bratticeman, employees of the United States Coal & Coke Co., were suffocated in the No. 2 mine of this company at Gary, near here, according to information received by R. M. Lambie, chief of the State Department of Mines. The mine was closed on account of shortage of cars, but these men, to perform their usual duties, entered an old drainage heading not in use since 1918. There they encountered a small body of gas which caused an explosion. The men were overcome and died before assistance reached them. The explosion was slight, and no damage was done to the mine.

Elkins—The Inter-Mountain Superintendents', Mine Foremen's and Fire Bosses' Mining Institute has been organized here by officials connected with the mines in Barbour and Randolph counties, with a view to closer co-operation between mine officials and the State Department of Mines. The roster of officials of the Institute include: C. A. Blakeslee, of the Davis Coal & Coke Co., at Dartmoor, president; John T. Fallon, superintendent of the West Virginia Coal & Coke Co., secretary and treasurer; vice presidents—Thomas Davis, Mabie; Andie Huatt, Norton, Va.; N. A. Ford, Coalton, James Wilt, of Mabie. J. W. Bischoff, general superintendent of the Davis Coal & Coke Co., was the host to the visiting mine officials after the organization meeting.

Glen White—General discussion of mining problems, such as the cutting and shooting of coal, welfare conditions and numerous other phases of mining, featured the regular monthly meeting of the Glen White Mining Institute held recently at this place. Virtually all the officers and most of the employees of the E. E. White Co. attended the meeting of the institute held in the large auditorium in this community. One activity suggested by a miner of Italian birth was the teaching of English to foreigners. E. E. White, president of the E. E. White Co., was one of the speakers at the institute; Mr. White urged employees to take advantage of the numerous educational facilities provided by the institute as a means of fitting themselves for better positions.

Fayetteville—Another mining institute has been formed in Fayette County, to be known as Auxiliary No. 1 of the Fayette County Mining Institute, the auxiliary having been launched at a meeting of mine superintendents, mine foremen and fire bosses to the number of about 60. Officers elected at the first meeting of the auxiliary institute were: John Mellbone, of Summerlee, president; Thomas Donelson, first vice president; William Ward, Harvey, second vice president; John Robinson, Minden, third vice president; Jno. S. Mason, Dunloop secretary and treasurer; C. C. Wood, Kilsyth, and Frederick Chapman, Sun,

members of the executive board. At the initial meeting the following papers were read: A paper on "Mine Management as Based on Three Essentials," by R. M. Lambie, Chief of the Department of Mines, and a paper by District Inspector Nicholson, on "The Recovery of Coal."

Thomas—S. E. Hawkshaw, district mine inspector, has been elected the first president of the Upper Potomac Mining Institute, organized here recently at the instance of the West Virginia Department of Mines in order to insure closer co-operation between the department and those engaged in mining.

At the organization meeting, H. H. Pierce, superintendent of the Pierce operation of the Davis Coal & Coke Co., acted as temporary chairman. At the organization meeting, superintendents, mine foremen, firebosses and others engaged in mining were present; district inspectors Riggleman and Hawkshaw were also at the meeting. Other officers elected in addition to president Hawkshaw were: H. H. Harrison, Pierce, first vice president; Matthew Blair, Thomas, second vice president; J. J. Dobbie, Albert, third vice president; E. P. Brennen, of Thomas, fourth vice president; Clyde A. McDowell, secretary and treasurer.

OHIO

Columbus—Among the first actions taken by railroad managements after the return of the roads to their owners was the announcement, in Ohio at least, that there would be no further confiscation of coal at the mines by railroads. Coal may be confiscated while entransit but the operator will have the satisfaction of knowing that the coal will be consigned to some buyer who is anxious for it. The other action was the order that all cars should be returned to their own lines as soon as practicable. This is expected to help the car supply in time.

Officials of the Ohio Industrial Commission and miners officials believe that one of the most important laws, for the protection of miners, was enacted at the close of the recent session of the Ohio General Assembly, which provides for the establishment and maintenance of five mine-rescue stations located in the important mining regions of the state. Each station is to be fully equipped with the latest devices for resuscitating asphyxiated miners; also oxygen outfits, breathing devices for entering dangerous mines, safety lamps, fire hose and first-aid supplies. Each of the stations is to be continuously in charge of a superintendent appointed by the Ohio Industrial Commission. The superintendent is to be under the immediate supervision of the district mine inspector.

ILLINOIS

Murphysboro—The Lincoln Coal Co., a Chicago corporation, is preparing to enter this Illinois mining field, according to reports from Murphysboro. This company has an option on the West Virginia coal mine on the Missouri Pacific, near that city, and some big developments in the vicinity are expected in the early spring. This is in the famous "Big Muddy" region, where the coal has proved to be of excellent quality and has an established reputation.

Benton—Both Benton, of Franklin County, and Harrisburg, of Saline County, are talking of erecting hospitals. The cost of the Benton hospital is estimated at $100,000, and the Harrisburg hospital at $150,000. Both towns are the centers of big mining districts and have need of hospitals. One of the plans for financing these undertakings is to secure help from the miners' locals of the two counties.

The No. 8 mine of the Old Ben Coal Corporation, at West Frankfort, has again broken its own hoisting record. One day recently this mine hoisted 5461 tons and made 1346 dumps in 7¼ hours. Twenty-five minutes were lost during the day.

Duquoin—The Southern Gem Coal Co., of Chicago, having extensive operations throughout this district, has begun the opening of a new field which is located about ten miles north of here, due east of Tamaroa, near where they recently purchased an operating mine. The concern owns thousands of acres of coal lands in the vicinity of its new drilling, in Perry, Jefferson and Franklin counties. The company recently purchased large tracts south of here near the Union Colliery Co.'s land and expects to sink mines in that vicinity also. At the present rate of speed which this company is making in the way of new developments in the mining industry, it is very evident that it will be only a matter of time until it will have become one of the large producers in southern Illinois.

Recent transactions by the West Virginia Coal Co., of St. Louis, include the purchase of the International Coal Co. and the Taylor Coal Co. with mines near Breese, north of here, located on the Baltimore & Ohio R.R. The consideration in the deal has not been made public but both the mines rank with the larger ones of the state. Other leases on coal tracts have been made during the past three weeks by President John Henderson (of the West Virginia Coal Co.) in Franklin County within five miles of the famous Old Ben collieries.

Reports reaching throughout the state indicate the sale of the mine owned by the Peabody Coal Co., of Chicago, located at DeSoto, 13 miles south of here, to Chicago capitalists. Details of the deal have not been given out in full, but it is understood that, on taking possession of the property, the new owners intend to make many improvements to increase the output of the mine.

The Lincoln Coal Co., of Chicago, has negotiations pending with the West Virginia Coal Co., of St. Louis, for the purchase of the Blair mine near Murphysboro, Jackson County. It seems that the Chicago concern already has an option for the purchase of the mine but the deal has not actually been closed. Other new developments in the near vicinity include a new mine which has been planned by the Big Muddy Coal and Iron Co., a concern having two mines in operation near Murphysboro.

A new scale, said to be the largest track scale in southern Illinois, has been purchased by the Moffat Coal Co., from the Fairbanks-Morse Co., and will be installed at the Moffat mine near Sparta. The scale which is of 150 tons capacity, will be put in just as soon as the weather permits the excavating of the large pit which it requires.

Personals

A. T. Shurick, who has been identified with the coal industry in both an editorial and engineering capacity for the past 20 years, has been elected to the vice presidency of the F. C. Thornley & Co., Inc., consulting and constructing engineers, specializing in coal-handling equipment. He will devote his attention particularly to the mining and distributing problems of the company.

Mr. Shurick received his engineering training at the Virginia Polytechnic Institute, and was engaged in the active practice of his profession for ten years as follows: He was with Rock Island Coal Co., the Mexican Coal & Coke Co., and was engineer of coal properties for the Anaconda Copper Mining Co. His work in these fields was of a varied nature, involving a multiplicity of mining systems, including many unusual problems.

A. T. SHURICK

Mr. Shurick joined the editorial staff of *Coal Age* when that journal was started in 1911; he was identified with its development up to the time of the war, when he entered the army where he served as a captain with the 209th Engineers. For the past year he has been, first, technical editor, and later business manager of the *Coal Trade Journal*.

F. C. Thornley & Co. are specialists in the development and construction of mechanical labor-saving methods as applied to transfer terminals, distributing and storage yards, industrial plants, locomotive coaling stations, etc. The company designs, erects and organizes for operation large or small-capacity installations of the character noted. The Thornley Co. has just moved into its new offices at 31 West 43d St., New York City.

James McEwan, of Arcadia, Indiana County, Pa., has been named superintendent of the Pennsylvania Coal & Coke Corporation, at Beaverdale, succeeding E. H. Gray.

Robert Bonar, for the past five years superintendent of the Pacific Coast Coal Co., at South Wellington, has left for Michel, B.C., where he will make his home.

Emmett H. Erwin, for many years connected with various coal activities in southern Illinois in Williamson and Saline counties, has been appointed general sales manager of the O'Gara Coal Co., of Chicago, filling the vacancy of J. R. MacFarland, who resigned to become general sales manager of the Indiana Coal & Coke Co., of Terre Haute. Mr. Erwin in 1906 became associated with mining men at Marion, Ill., and later formed the Consumers' Coal Mining Co., which owned and operated two mines near there and of which he was secretary and sales manager.

Obituary

Robert J. Parks, of St. Louis, recently died at his home after many years of service as secretary for the Mt. Olive & Staunton Coal Co., of St. Louis.

William Frech, Sr., treasurer of the Golden Rule Co., which operates the Senior mine near Lenzburg, Ill., died recently at his home in Lenzburg. He worked up to his position from the bottom of the ladder, having at one time been a practical miner and helped sink the shaft for the mine of which he was an official.

John Hale, aged 88, a pioneer in the coal industry in the anthracite field, died recently at his home at Scranton, Pa. He was born in Trowbridge, England, coming to this country when a young man. In 1857 Mr. Hale entered the employ of the Delaware, Lackawanna & Western company and continued with this corporation until 1903, when he was retired on pension. He was superintendent of the Bellevue mine for 46 years.

Richard Henry Brown, one of the oldest mining engineers in Canada, died recently at the age of 82 years. In 1864 he succeeded his father, Richard Brown, as manager of the General Mining Association, of Sydney, a position which he retained until 1900, when the properties of the association passed into the hands of the Nova Scotia Steel & Coal Co. After one year's service as manager of the Nova Scotia company, he retired from active work in the mining field. As a tribute to his professional standing and work in promoting the coal mining industry, he was made an honorary member of the Mining Society of Nova Scotia. Mr. Brown is survived by three daughters.

Publications Received

Stratigraphy and Correlation of the Devonian of Western Tennessee. By Carl O. Dunbar, State of Tennessee State Geological Survey, Nashville, Tenn. Illustrated; pp. 127; 6 x 9 in.

Coal Resources of District V, Saline and Gallatin counties. By Gilbert H. Cady. State of Illinois Department of Registration and Education, Division of the State Geological Survey. Urbana, Ill. Illustrated; pp. 135; 6 x 9 in.

Report of the Distribution Division, 1918-1919. Part II—The Zone System. By Wayne P. Ellis, U. S. Fuel Administration. Distribution Division. Illustrated; pp. 124; 9 x 11½ in. Details about the zone system in use during the war.

Oil Investigations in 1917 and 1918. State of Illinois, Department of Registration and Education, Division of the State Geological Survey, Urbana, Ill. Bulletin 40. Illustrated; pp. 144; 7 x 10 in. Report on investigations.

Report of Progress in Warm-Air Furnace Research. By A. C. Willard, Engineering Experiment Station. Published by the University of Illinois, Urbana, Ill. Bulletin 112. Illustrated; pp. 68; 6 x 9 inches. First of series of warm-air furnace research.

California Oil Fields. Fifth annual report of the State Oil and Gas Supervisor. Published by the California State Mining Bureau, San Francisco, Cal. Illustrated; pp. 72; 6 x 9 in. A summary of operations.

Reinforced Concrete Construction. By George A. Hool. Vol. I—illustrated; pp. 254; 6 x 9 in.; Fundamental Principles. Vol. II—illustrated; pp. 666; 6 x 9 in.; Retaining Walls and Buildings. Vol. III—illustrated; pp. 688; 6 x 9 in.; Bridges and Culverts. Published by McGraw-Hill Book Co., Inc., 239 W. 39th St., New York, N. Y.

Hendricks Commercial Register. Published by the S. E. Hendricks Co., Inc., 2 W. 13th St., New York City. Twenty-eighth annual edition (1919-1920). Illustrated; pp. 2,541; 7½ x 10 in. An annual register of producers, manufacturers, dealers and consumers of the United States for buyers and sellers.

Donnelley's Red Book. Published by The Reuben H. Donnelley Corporation, 652 So. State St., Chicago, Ill. January, 1920, edition (published semi-annually). Illustrated; pp. 1,716; 8½ x 11¼ in. A national buyer's guide and sales catalogue. The service is offered in two phases—first, the book, and second, the service stations.

Report of the Distribution Division—1918-1919. Part 1. The Distribution of Coal and Coke. By C. E. Lesher. U. S.: Fuel Administration, Distribution Division. Illustrated; pp. 143; 9 x 11½ in. The report notes the requirements for coal in 1918; ability to meet requirements, and the organization, policy and work of the bureaus of distribution division.

Conservation Through Engineering.—By Franklin K. Lane, Department of the Interior, United States Geological Survey. Bulletin 705. Not illustrated; pp. 35; 61x9¼ in. Extract from the Annual Report of the Secretary of the Interior for the fiscal year ended June 30, 1919. A plea for constructive policies on the part of those developing the power resources of the country.

Panel System of Coal Mining, a Graphical Study of Percentage of Extraction. By C. M. Young. Bulletin 113. Engineering Experiment Station. University of Illinois, Urbana, Ill. Illustrated; pp. 76; 6 x 9 in. The conclusions reached in the investigation of mining methods in Illinois in 1917, led to the study of the panel system, here described.

Coal Resources of District V—(Saline and Gallatin Counties). By Gilbert H. Cady. Bulletin 19. State of Illinois, Department of Registration and Education, Division of the State Geological Survey. Co-operative Mining Series. Illustrated; pp. 135; 6 x 9 in. A district in the southern part of Illinois, adjacent to the well known Franklin and Williamson county field.

Concrete Engineers' Handbook. By George A. Hool and Nathan C. Johnson; assisted by S. C. Hollister; with Chapters by others. Illustrated; pp. 885; 6 x 9 in. Published by the McGraw-Hill Co., Inc., 239 W. 39th St., New York, N. Y. This book was prepared to give concise knowledge about concrete and reinforced concrete, including complete data, details and tables. The book is intended as a working manual for the engineer.

Removal of the Lighter Hydrocarbons from Petroleum by Continuous Distillation. With especial reference to plants in California. By J. M. Wadsworth. Department of the Interior. Bureau of Mines. Bulletin 162. Petroleum Technology 45. Illustrated; pp. 162; 6 x 9 in. Description of the methods of construction and operation of representative types of plants in the U. S. for removing the light hydrocarbons from petroleum by continuous distillation.

Coming Meetings

The American Association of Engineers will hold its annual convention at the Planters Hotel, St. Louis, Mo., May 10 and 11. C. E. Drayer, secretary, Chicago, Ill.

National Foreign Trade Convention to be held in San Francisco, Cal., May 12, 13, 14 and 15.

Chicago Coal Merchants will hold its annual meeting April 13, at Chicago, Ill. Secretary, A. H. Kendall, Chicago, Ill.

American Chemical Society will hold its annual meeting at St. Louis, Mo., April 13, 14, 15 and 16. Secretary, Dr. Charles L. Parsons, 1709 G. St., N. W., Washington, D. C.

New England Coal Dealers' Association will hold its annual meeting March 24 and 25, at Springfield, Mass. President, W. A. Clark, 141 Milk St., Boston, Mass.

National Retail Coal Merchants' Association will hold its annual meeting June 10, 11 and 12 at Detroit, Mich. Secretary-manager, Ellery Gordon, Philadelphia, Pa.

Indiana Retail Coal Merchants' Association will hold its annual meeting April 27, 28 and 29 at the Severin Hotel, Indianapolis, Ind. Secretary, R. R. Yeagley, Indianapolis, Ind.

Industrial News

Hard Burley, Ky.—The Hardy-Burlingham Coal Co. will build a new coal tipple at its plant for increased operations. Plans for the structure are said to be under way.

Blacky, Ky.—The Rockhouse Coal Co. is having plans prepared for the construction of a new tipple at its local development, for increased operations.

Harlan, Ky.—The Black Mountain Coal Corporation, operating in the Black Mountain district, has had plans prepared for the construction of a new coal bin at its plant to have a capacity of about 100,000 tons.

Renton, Pa.—The Union Collieries Co. has awarded a contract to the J. G. Fullman Co., Pittsburgh, Pa., for the construction of about thirty new dwellings for miners' service. The buildings will cost approximately $4,000 each.

Birmingham, Ala.—Henry Neny and Leo Sossong, Carnegie, Pa., are understood to be arranging for the installation of complete mining equipment and machinery for the development of coal properties located in the Cahaba field in the vicinity of Birmingham.

Charleston, W. Va.—Stockholders of the Kanawha & Hocking Coal & Coke Co. have authorized a material increase in the capitalization of the company, which has been increased from $3,500,000 to $5,000,000. This company has large operations in the Kanawha field, although its general offices are at Cleveland, Ohio. Richard Inglis is the president of the company.

Bluefield, W. Va.—It seems to be pretty well understood, now that the railroads have been returned to private ownership, that the work of electrifying the Tug Fork division of the Norfolk & Western R. R., which was discontinued during the summer of 1919, because of lack of funds, will be resumed. If such is the case it will mean a better movement of coal on this railroad.

Pineville, Ky.—In the notice about the development of the Kentucky Colleries Corporation, which appeared in the Jan. 1, 1920, issue of *Coal Age*, it was stated that the initial capacity of this plant was to be about 400 tons per day. This company announces that it is running over 400 tons daily at present and it is proposed to ultimately have an output of about 4,000 tons in eight hours.

Beckley, W. Va.—Chicago people are largely interested in the Dearborn Coal Co., which proposes to operate mines in Town district of Raleigh County, near Stonewall, W. Va. This company has a capital of $125,000. In addition to J. W. Bell, of Bellewood, those who had an active part in the organization of the new company were: H. M. Hall, G. F. Stahmer, Edward Klineberg, W. W. Robson, of Chicago.

Oakland, Md.—The Penn-Mary Coal Co. is arranging for the purchase of about 1,000 new coal hoppers to be used for the transportation of coal from its mines to eastern districts. The company operates extensive holdings in Preston County, W. Va., and is affiliated with the Bethlehem Steel Corporation. The company also recently completed negotiations for the purchase of property from the Davis Coal Co.

Blacky, Ky.—The Blacky Coal Co., which recently increased its capitalization from $40,000 to $75,000 to provide for expansion, is having plans prepared for the installation of mining machinery, equipment, etc., for the development of a total of about 500 acres of coal properties in the Blacky district. It is proposed to have a capacity of about 200 tons daily for initial operations. H. E. Taylor is secretary.

Huntington, W. Va.—The Hooper-Mankin Fuel Co. has been organized for the purpose of buying and selling high-grade bituminous coal. T. H. Hooper, of this company, formerly treasurer of the Amherst Fuel Co., and affiliated companies, has been made president; Robert Mankin, of the firm of R. Mankin & Co., has been made vice president; T. W. Wyatt has been made secretary and treasurer.

Buckhannon, W. Va.—Preparations are being made by the Buckhannon River Coal Co. to open another mine in Adrian, in Upshur County. In connection with this development, the company plans to build about 150 dwellings for miners. This concern now produces about 1,250 tons a day, employing about 300 miners at its various mines. The company has also resumed the manufacture of coke after its ovens had been in idleness for a period of about two years.

Welch, W. Va.—Development work on a large scale will follow the purchase of about 2,000 acres of smokeless coal land on the waters of Dry Fork in McDowell County, W. Va., by the United States Coal & Oil Co., of Holden, W. Va. This company also owns the Island Creek Coal Co., and the Pond Creek company, but it is now evident that the corporation plans to produce smokeless as well as high-volatile coal. It is understood that the company will soon sink a shaft near English, McDowell County, where the property is located.

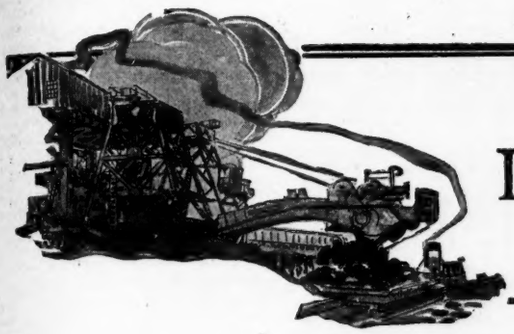
Charleston, W. Va.—During the second week of February three West Virginia companies increased their capital stock as follows: The U. S. Block Coal Co., of Huntington, whose capital was increased from $50,000 to $75,000; the West Virginia Eagle Coal Co., operating at Boomer, W. Va., increasing its total capital from $100,000 to $150,000. W. G. Conley, of Charleston, president of the company; the Lewiston Block Coal Co., of which H. H. Weiske, of Charleston, is president, increasing its capital stock from $100,000 to $150,000.

Fairmont, W. Va.—A. Brooks Fleming, Jr., assistant to the president of the Consolidation Coal Co., will head the Northern West Virginian Operators' Association, having been elected as the successor of C. H. Jenkins, at the annual meeting of the association held in this city on Feb. 27. A. Lyle White, of Clarksburg, was elected treasurer and Geo. T. Bell, of Fairmont, secretary and executive vice president. President Fleming is a son of former Governor A. B. Fleming. During the war he acted as production manager for northern West Virginia.

Bellingham, Wash.—Otho Williams, coast manager of the Pacific Coast Atomized Fuel Co. and organizer of the Bellingham Atomized Fuel Co., will erect a $100,000 assembling plant and laboratory here. Mr. Williams plans to make Bellingham headquarters for the network of probably 15 plants on the coast and in British Columbia, forming a branch of the McLaughlin Atomized Fuel Co. of the Eastern states. A single-unit plant will be built here, capable of manufacturing 50 tons of pulverized coal every ten hours. The waste coal of the Bellingham coal mines, Glacier mines, Northern Island mines and other mines in the vicinity of Whatcom County will be utilized in the proposed plant.

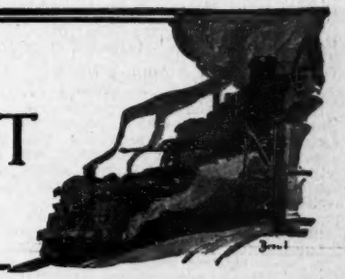
Rome, N. Y.—The stockholders of the Rome Wire Co., of this place, have recently authorized an increase in the capital stock of this company to $4,000,000 (7 per cent) first preferred and $5,650,000 common, the shares in each issue being $100 par value. The company's main plant is located at Rome, N. Y., on the New York Central R.R. and on the New York State barge canal. The land comprises 22 acres with 348,000 sq.ft. of modern factory buildings, fully protected by sprinkler equipment. All of the buildings have been constructed since 1905 and the larger part of them since 1914. The equipment is all modern and first class in every particular. The Buffalo plant consists of 11 acres of land in the northeastern part of Buffalo, N. Y., on the D. L. & W. R.R., with excellent trackage facilities and well constructed buildings adapted to the manufacture of electrical wires and cables. A large addition is under construction at this branch, the J. W. Cowper Co., Buffalo, N. Y., being the contractors.

Huntington, W. Va.—W. E. Deegans, the prominent operator of southern West Virginia, recently organized the W. E. Deegans Consolidated Coal Co. with a capitalization of $5,000,000, fully subscribed. It is announced that this company has leased about 15,000 acres of coal land in both Kentucky and West Virginia; the coal acreage leased being on the Norfolk & Western, on the Louisville & Nashville and on the Greenbrier & Eastern railroads. The coal land on the last named road being in Greenbrier County, W. Va. The company plans to begin development work in the quite near future and to prepare for operations at ten different mines. When the operations are fully developed, the company counts on an annual production of 1,000,000 tons. Officers of the new company have not so far been chosen.



MARKET DEPARTMENT

EDITED BY ALEX MOSS



Weekly Review

Car Supply Shows Little Improvement—More Mines Forced to Shut Down—Tidewater Exchange Continued—New England Suffers Because of Successive Snowstorms.

SOME improvement has been noticed in the distribution of cars during the past week, but no great change is expected for at least a month. To the operator, the attitude of the railroad employees as regards wages, etc., is not pleasing for it is assumed that more attention will be given to the railroads internally than will be given to troubles outside.

Though domestic demand has eased off considerably, public utilities and large manufacturing plants are being pinched more and more, and so long as the weather continues to be cold, the situation will not show any change. Successive snowstorms through the week have contributed toward retarding railroad deliveries and consequently the dumpings have been far below normal.

On account of inadequate car supply forcing many mines to close, some districts are looking for their requirements from other sources where coal is available, and operators in those regions are now finding a market for their output where previously little attention had been given. For instance—Indiana coal is moving into Ohio, while Illinois coal is going into Michigan, as well as to points in the Northwest, such as North Dakota. These latter-named regions are usually served from other sources.

The situation at Hampton Roads is much easier and coal is moving from the mines in better volume. A large tonnage is again moving on export business. Now that the Shipping Board has withdrawn control of coastwise rates and so long as the use of the Tidewater Coal Exchange is made compulsory, it remains to be seen just how this will affect current shipments.

Some of the big users of anthracite steam sizes are still in the market. This is almost the end of the season, for in former years this business was closed long before March 15. Retail dealers have received rather meagre shipments of domestic sizes of anthracite, especially in New England, where great difficulty is encountered in clearing snowbound tracks.

Production of coke in the Connellsville region continues to increase slowly with occasional backsets. However, with adequate transportation, the present 85 per cent production can soon be increased to normal.

Much interest is being given to the coming week, for it has been rumored that the commission now investigating the bituminous-coal industry will make its decision public on or about March 10. Then, too, there is a possibility of a new wage argreement between the anthracite operators and miners. They are to meet in New York City on March 9. An increase in the price of anthracite is expected.

WEEKLY PRODUCTION

The weekly report on the production of bitumnious coal, anthracite, and beehive coke, compiled by the Geological Survey, Department of the Interior, March 6, 1920, states that a partial recovery from the decline of the preceding week is indicated by reports of coal loaded by the principal carriers during the week ended Feb. 28. Because of changes in organization attending the transfer of the railroads to private operation, no reports for the week have yet been received from many important carriers. Any estimates of production are, therefore, necessarily subject to revision. The returns so far received point to a total output for the week of Feb. 28 amounting to approximately 10,230,000 net tons. Compared with the 9,511,000 tons produced during the preceding week (Feb. 15 to 21), this was an increase of 719,000 tons, or 7.6 per cent.

Material improvement was also reported by the anthracite industry. Loadings for the week ended Feb. 28 (in part estimated) are placed at 33,079 cars. This suggests a total output of 1,699,000 net tons, an increase of 236,000 tons, or 16.1 per cent, over the preceding week. Compared with the corresponding week last year when the mild winter and the post-war slump in demand reacted unfavorably upon demand, the current week showed an even greater increase, amounting to 597,000 tons.

The weekly statistics of production of beehive coke published by the Geological Survey are estimates, based on reports of cars of coke loaded by the 26 principal coke-originating roads. In 1917 these roads originated 97 per cent of the total rail shipments of beehive coke.

On this basis production during the week ended Feb. 28 is placed at 433,000 tons, an increase of 6,000 tons, or 1.4 per cent, over the preceding week. Cumulative production during the first 51 working days of 1920 was 3,707,000 tons, a decrease of 12.7 per cent when compared with last year.

Atlantic Seaboard

BOSTON

Contract activity. Milder weather improves outlook. Movement increases very gradually. "Emergency" coal received only in light volume. Railroad requirements the chief factor. Hampton Roads situation easier. Receipts at Philadelphia and New York piers.

Bituminous—The withdrawal of the restricted price is being much discounted. Most of the Pennsylvania shippers are very active soliciting contracts for the year beginning April 1. There is a wide range of quotations, depending upon the grade, but it grows increasingly evident that coals available for export or bunker use are to be in strongest demand.

In other words, steam users here are trying to cover on the better grades while there is still opportunity, although at the same time there is a disposition to wait before buying coals that are only of fair quality. Taking into account all charges, the relative cost of the better coals does not show a very wide margin over those of poor quality. It is quite natural therefore that there should now be a vigorous effort to secure the quality coals from Cambria and Somerset.

The milder weather has already changed the immediate outlook. When zero temperatures were prevailing a week ago there was much in the press about the serious situation confronting New England industries. It is of course true that stocks are being depleted, but the fact that the all-rail gateways are now open and that the thousands of cars frozen to the tracks are gradually being moved argues for much less apprehension than prevailed a fortnight ago. The Maine Central and the Boston & Maine are making great efforts to clear their sidings and when we consider the very large number of cars now under load it is clear that this section faces no immediate distress.

Movement has increased so gradually that even now only one of the gateways has been opened to anthracite. The New England roads are still unable to take from the intervening lines as many cars as are daily received, but a marked improvement is looked for during the next ten days. A large tonnage that left the mines a month ago has not yet reached the transfer points allowing for very heavy confiscations. Coal has been seized since Feb. 28, but in nothing like the volume that was taken previously. For real emergencies, on their own lines, certain of the railroads are commandeering, but expected arrivals of water coal will soon remedy this situation.

"Emergency" cargoes are arriving only slowly. Several of the ships specially allocated are still on the high seas with inbound cargoes. That this is true is rather fortunate for would-be purchasers. Certain ships that have arrived have met with extremely slow despatch, due to short car supply, and general lack of facilities. There have been cases where demurrage had accrued to more than a dollar a ton and these charges together with the export price have made the delivered cost very high. There is reason to think that any very considerable tonnage would not have been absorbed except with great difficulty, for it becomes more and more apparent

that the only urgent requirements were those of the railroads.

Much of our troubles can be laid at the door of the Railroad Administration. The effort to secure a very large proportion of engine supply by the all-rail, or cheaper, route resulted in a breakdown on the part of many of the contractors. What seemed the desirable move for the railroads was also desirable for consumers generally and the net result was the sheer inability of Pennsylvania operators to live up to the heavy obligations they had undertaken.

The situation at Hampton Roads is much easier. The coal is moving from the mines in better volume and despatch is now seldom more than two days. The real delays have come at this end where it was not possible to make any real preparations for receiving coal in such volume. A large tonnage is again moving on export business and the agencies here are not counting upon very much tonnage for New England.

The Shipping Board has now withdrawn control of coastwise rates and it is not to be expected that sales will be very heavy in this market so long as there appears a chance of getting liberal shipments during the season from Central Pennsylvania. Receipts at the New York and Philadelphia piers continue very light.

Use of the Tidewater Coal Exchange is again made mandatory and it remains to be seen what will be the result upon current shipments. Those Pennsylvania operators in position to sell for export are keenly alive to the heavy tonnages being moved from Hampton Roads and there is apparent a real anxiety over the prospect for placing the better Cambria coals overseas.

Anthracite—Demand continues very strong for prepared sizes. Egg, as well as stove and chestnut, is now in good request and retailers are making every effort to get coal forward. Water movement is improving slowly, but all-rail only the Boston & Albany is open. The embargoes against the New Haven and the Boston and Maine are expected to be lifted early next week, if not before, and we may then look for a very heavy movement all-rail.

Notwithstanding all the publicity given the dire need of industries here for steam coal, there has been no appreciable increase in the demand for steam anthracite. The market for these sizes is, in fact, almost druggy although it is possible that later in the month they will be in better request.

NEW YORK

Anthracite demand active. Consumers are placing orders for next winter's coal supply. Law of supply and demand controls the situation. Steam sizes are in good call with prices strong. Bituminous in steady call.

Anthracite — Continuance of good coal consuming temperatures and the belief that price will advance on or soon after April 1 has kept the market on its toes. Usually dealers are taking life easy during March but because of the past few months of low temperatures resulting in bins being nearly emptied and the reasons stated previously they are busily occupied.

Consumers are not letting go unnoticed the warnings printed in the daily newspapers that coal prices are likely to advance, that the working agreement between the operators and their employers expire on March 31 and that the new demand of the mine workers ask for a 60 per cent increase in pay. Because of all this many have already placed orders for next winter's fuel supply to be delivered this month.

Supplies are not in oversupply either with the wholesale or retail dealer. The trade is ordering freely and are willing to have their bins filled when the new coal year begins. Most wholesale houses have sufficient orders on their books to take care of this month's output and the orders continue to come in.

All domestic sizes are in good demand. In some quarters egg is the shortest while other houses say they have the heaviest call for stove. Producers and shippers of independent product have no difficulty in obtaining the 75c. differential on their output.

A good call continues to be received from New England and northern part of this state, it being accompanied by requests for quick shipments. The few days of moderate weather conditions last week aided the dumpers at the piers and resulted in the frozen release of many cars of coal.

There is much activity in steam sizes due to the continued lack of bituminous coals. No. 1 Buckwheat is in unusually heavy demand and independent product is bringing in some instances from 25c. to 50c. above the company circulars, with loaded boats bringing higher prices. Rice is in fair demand and in some cases is being held at 25c. above regular circulars. The supply of barley is not large due to frozen coal and the lack of washery product. Still it can hardly be had at concessions. Current quotations for company coal per gross tons at mine and f.o.b., Tidewater, at the lower ports are as follows:

	Mine.	Tide-water		Mine.	Tide-water
Broken..	$5.95	$7.80	Pea.....	$5.30	$7.05
Egg.....	6.35	8.20	Buck....	3.40	5.15
Stove ...	6.60	8.45	Rice	2.75	4.50
Chestnut	6.70	8.55	Barley ..	2.25	4.00
			Boiler...	2.50	4.25

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous — There is much optimism among the trade. While the situation has been anything but encouraging the past few weeks bright spots are now appearing to most of the trade and it is thought the worst is over. It is hoped that the next few weeks will see an improvement.

The trade here was interested in the newspaper report that the Bituminous Wage Commission had decided upon a 16 per cent increase for the miners, but would make no comment. They are anxiously awaiting the formal report which they expect will soon be made. Poor car supply continues to be a factor in low stocks, reports from the mines not showing anything like normal figures.

Buyers from New England are daily visitors to the local offices, but interruption of transportation due to the heavy snows prevents shipments. Meantime reports received from those states show that many factories are on the verge of closing down because of the lack of fuel. The raising of the embargoes on the railroads entering the New England States has helped deliveries but considerable coal is needed to relieve the situation.

The reported resumption of shipments through the Cape Cod Canal will help considerably in aiding the situation in and around Boston. The canal had been closed since the Railroad Administration relinquished control. New complaints are heard daily of the failure of the railroads to make deliveries, although the coal has been on the road for several weeks.

Higher water freight rates are looked for now because of another increase in wages granted the workers on the tugboats in the harbor and which is retroactive to March 1. Receipts at the piers are improving under private operation of the railroads. Local dealers are obtaining a fair share of their requirements and the bins of the various public utility corporations are being rapidly replenished.

PHILADELPHIA

Anthracite continues in active demand. Milder weather decreases consumption, but consumer wants coal despite it. Higher prices probable. Stove and nut in chief demand, although good tonnage of pea moved. Egg well cared for. Receipts below normal need.

Anthracite—With mild weather prevailing for most of the week the calls for coal by the consumer were not so insistent, but it must not be taken from this that the dealers are not busy, for that is far from true. Everybody has plenty of orders on the books and most of this is filling in of depleted stores. With the weather again turning cold toward the end of the week, with some snow, there was also a good current demand for fuel.

As has been the case all winter long the demand continues to be centered on stove and nut sizes and despite all efforts of the dealers to turn the customers on pea, they are met with the reply that pea is too small. As a matter of fact the dealers knew this to be a fact and in the event that the operators do not consent to the changing of the sizes it is more than likely that they will be called upon to bring pea up to the standard, and in addition make the margin in prices such as will be attractive to the old-time consumer of this size.

Yet with the reluctance of the consumer to take pea it is a fact that the dealers are moving a fair-sized tonnage of this size. It is simply a case with the small consumer of taking this size or doing without, as there is not near enough of the large sizes to go around. The companies report that they are moving all the pea they make without any difficulty, but the individuals have nearly all dropped from their premium price and are making sales at the company figure of $5.30 or close to it. Some of the strictly brokerage houses have independent pea coal for sale and are asking from $5.40 to $5.50 a ton for it.

Of the large sizes egg is the only one that is not eagerly sought for by the dealers, although they are also putting out a good tonnage of this size. However, the producers are having but little trouble to dispose of this size, as the gas making plants in this territory are in the market for large anthracite sizes since there has been such a shortage of bituminous-gas coals.

The consuming public is becoming stirred up over the coming wage conference, especially since the miners demands are being given considerable newspaper publicity. It is really believed that 50 per cent of the calls upon the dealers these days can be traced to that fact, as the consumers are anxious to get in next winter's coal before another increase in price becomes effective.

Activity in Buckwheat

There is a fair amount of activity in the steam trade, particularly in buckwheat. The regular users of this size are calling on their shippers for increased deliveries of buckwheat, and it looks as if they were trying to stock up in the face of a probable price increase. In addition there has been quite a demand from new trade on this size, anxious to help out depleted stocks of bituminous coal. The boom, though, if it can be called that, has not affected the individual shippers to the point that they can get premiums, as most of them are still satisfied to move all the produce at $3.40 figure.

Naturally when buckwheat is all taken the demand for rice becomes stronger, and while the independents are still willing to shade the $2.75 price, some sales being made around $2.40 to $2.50, even then they are not moving it as rapidly as they would like to. The big companies are picking up heavy tonnages of rice from the storage yards, although little of this is going to line trade, most of it being intended for the piers. Barley, the smallest size, still lags and there is little call for it.

Some of the big users of anthracite steam sizes are making inquiries for contract prices, as this is the time of year when this business is ordinarily closed. So far as the shippers are concerned they show no inclination whatever to make a figure, as in the face of the conditions at the mines they have nothing on which the base a price.

In any event it is figured out that buckwheat will be able to command a good price in the market this coming year, as for the past several years the companies have been just able to meet the demand for it. With rice and barley it is a different story and in the case of extremely large users of these sizes it would not be surprising to hear of some concerns taking a chance on the price and closing business at this time.

The local dealers have received rather meagre shipments of family coal lately and it is reported that with the New England roads finally clearing their tracks and with the embargoes lifted a heavy tonnage of these sizes is going forward there all rail and it is feared that the local market will feel the effect of this for some time to come.

Bituminous—The most that can be said about bituminous is that it has not grown worse. It is believed that most plants hereabouts have been able to resume and are running with very little ahead of them. Most of them have always had a fair amount of coal under way, but suffered severely from the policy of the administration in diverting coal. Lately there has been very little coal diverted, although a rumor was broadcast and had considerable currency that there would again be wholesale confiscations to help out needy points to the North.

Little Car Improvement

We have been unable to find any shipper who was willing to admit that the car situation had improved, although the various road managements have assured them that now with the lines cleared of snow there should be a very decided improvement from this time onward, barring, of course, any severe snow storms such as the month of March has been known to produce.

Consumers are very anxious as to contracts for the coming season and the inquiries in this direction have increased very considerably of late. All of the anxiety in this direction is not on the part of the buyer, either, as more than one operator is quietly sounding the market to find out if his competitor is making a price and thus give some basis for setting a figure.

It is rumored that one of the largest shippers has closed some business at a figure close to $3.60 at the mines. The story persists in such a way as to make one believe that there is some element of truth in it, but even at that it is believed that in the event of a wage increase that would make this price unprofitable, the figure will be changed to conform thereto.

Coal cars continue to be used for every other purpose than coal, and the demand for them for other uses seems to get the preference.

BALTIMORE

Coal trade as a whole far from satisfied by failure to remove uncertainty with passing of government railroad control. Hand of regulation heavier than ever. Car supply and general run of coal wretched. Exports at an end. Hard coal dealers think of spring.

Bituminous—The feeling of disappointment is paramount in the Baltimore coal trade, which finds uncertainty still hanging heavily over business with the passing of government control of the railroads. The action of the president in re-affirming orders of October and December by which the Central Coal Committee through regional directors still holds control of distribution, etc., and the creation of a special committee on exports and bunkers which has let it be known that the foreign trade is for the "dim future" means that the hand of control is heavier than ever.

There is wide talk of action through the American Wholesale Coal Association and individual agencies of a test of the law of control, but the length of time that would be required is a discouraging feature. Meanwhile the car supply and fuel supply has gone from bad to worse. Starting with the early part of last week with a 71 per cent car supply on all the Baltimore & Ohio System and a daily car loading of 3,329 cars, the fall was sure until the closing days of the week saw the supply running between 30 and 40 per cent and the daily car movement decreased to around 1,800 to 2,000 cars. At the piers here the supply was wretched.

The Baltimore & Ohio supply at tide ran at times as low as 100 cars and seldom over 200. One ship took all week to load with dispatch at Curtis Bay, taking on around 7,500 tons, while another has sailed away from the Canton pier of the Pennsylvania with 3,609 tons of cargo and 1,200 tons of bunker coal, both coastwise.

Anthracite—Hard coal men are looking toward spring and in the meantime not forgetting that they have some immediate problems. One of those at present is to head off some "fool" legislation before the Maryland General Assembly which would allow almost "any Tom, Dick or Henry" to stop coal cars on the street and order them to be weighed, and allow only a 1½ per cent margin for underweight before a fine was imposed.

As to spring the coal men are already discussing the idea that they must "sell as they buy." In other words it may be no surprise if it is decided to make the price that of time of delivery, the coal men assuming no responsibility for traffic breakdown, strikes, etc. This would mean that a big part of the Baltimore business which has been done on the plan of payment at the time of order, coal to be dumped at any time over summer or fall, must be revised.

The method of the mines at present for monthly payments has forced this issue to prevent serious loss by retailers. The supply of coal just now is fairly good, except for the fact that many dealers would like to have more of the nut and stove sizes.

Eastern-Inland

PITTSBURGH

Steel-mill operations affected by coal shortage. Coal operators pleased at railroad officials again being in authority. Robinson Commission expected to authorize higher coal prices.

Coal shortage affected operation of steel mills more last week than for several weeks. The Youngstown Sheet & Tube Co. had to close several finishing departments for the last two days of the week, while the Republic Iron & Steel Co. had its entire Bessemer department, including the finishing mills, idle for three days. This week receipts of coal at Youngstown have been somewhat better, but coal operators do not report any general improvement in the car-supply situation.

Practically the unanimous opinion in the coal trade is that improvement in transportation conditions will come chiefly if not wholly from improvement in weather conditions. While shippers are pleased that the railroads have been returned to their owners they do not expect the transfer to work much improvement in the actual movement. Much satisfaction is expressed on one point, that shippers can now approach railroad officials and ask to know precisely what the officials expect to be able to do, whereas during Government control the railroad officials were much disposed to place the responsibility for everything upon Washington.

No definite opinion is expressed as to what finding the Robinson Commission will make in the matter of wage rates, but the finding is expected to be made within a fortnight. It is regarded as altogether probable that even with a settlement on the 14 per cent basis a higher schedule of coal prices will be permitted, to run to April 30.

There are more rumors of coal transactions at above the Government limit, but such sales if made are put through secretly. The market remains quotable at the Government limits: Slack, $2.10; mine-run, $2.35; screened, $2.60, per net ton at mines, Pittsburgh district.

COLUMBUS

While the domestic demand is not quite so pressing as formerly, still the situation in Ohio is rather complicated. Steam demands are growing stronger and many sections are extremely short of fuel. Production is still at a low point.

Bituminous—With production still restricted below the 50 per cent mark in all Ohio producing fields, there is an increasing demand for fuel among large steam users. Reserves are being gradually depleted to a point where many of the public utilities and iron and steel concerns have no reserves to speak of. They are operating from hand to mouth, as it were, with little hopes of improvement in the fuel situation.

Rubber plants are rather short on reserves although the situation in that field is not serious. General manufacturing plants, especially in the northern part of the state are low and in some instances they are compelled to restrict operations in order to conserve coal. The worst situation appears among the lighting plants where fuel is being conserved.

In some northern Ohio cities reserves are exhausted and only a few hours supply of fuel is available. Schools and hospitals have been supplied by taking away from commercial purchasers.

Domestic demand is strong in every particular. Retail stocks are low and dealers are making strenuous efforts to secure shipments. Some dealers are entirely out of stocks while others are dividing up the available supply in order that they can give all purchasers a portion of their orders. In Michigan the situation is bad and some sections are entirely out of coal. Retail prices are firm at the levels which have prevailed for some time. Some difference is noted because of the different prices at which the coal was purchased. A margin of $2 per ton, over and above the cost of the coal at the mines and freight charges is allowed the dealer.

Car supply in the Hocking Valley field during the past week has been slightly improved and is estimated at about 45 per cent. Crooksville and Cambridge districts had about 40 per cent supply. In the Pomeroy Bend field the supply was about 50 per cent which is an improvement over the previous week. In the eastern Ohio field there is little improvement noted and reports show that cars have totalled about 35 per cent of requirements. This is restricting operations in that field to about one-third of the usual tonnage.

CINCINNATI

Trade suffered somewhat the past week from the lack of tonnage, although there is not a famine in this section of the country, there is a famine in spots.

The demand is many times as great as the present output, and many jobbers are "up a tree" as to how they are going to fulfill orders taken last summer and fall. Collections from confiscated and diverted tonnage are improving weekly and it is the opinion of many operators that this end of the business will be cleaned up before the warm weather sets in.

Car supply continues to be erratic and no general confidence may be placed in it. It is the opinion of many operators that the biggest task now faced by the railroads since their return to private ownership is that of locating their own cars. For as conditions now exist one road may be unable to furnish cars to any great extent, while another road will have no trouble in meeting its demand with cars which rightfully belong to the road that is unable to furnish transportation equipment.

The market of course hinges on the car supply, and this has failed to improve, running from 39 to 45 per cent of normal. Reports from the country districts assert that the people are going back to burn wood as they did during the coal strike. Free coal is extremely scarce and very little smokeless is arriving at this end. It is not expected that any amount of free coal will be available until next month. Steam demand is continuing strong and there have been many concerns outside of this territory trying to place orders on the local market. From the present outlook it is thought that the supply of nut and stove sizes will be completely exhausted within two weeks, unless something unforseen occurs.

Most of the trouble in domestic delivery is the confiscation of coal en route by railroads leaving coal operators and distributors struggling still to get fuel to points where there is real distress. Locally some of the industries are living from hand to mouth.

There is little talk of a price list now. Most of the representative handlers are sticking to government prices on the little coal moving not under higher contracts, although there is no doubt that other prices are being asked and paid at times. Receipts by river were fairly good, but they are still hampered by inadequate transportation facilities.

Lake Region

BUFFALO

Terrible car shortage. Chief reason for difficulty in trade. Affects anthracite as well as bituminous. Situation grows worse.

Bituminous—The shortage of cars is becoming so distressing that the shippers do not talk of much else, for they believe that if cars should become reasonably plentiful the difficulties in the trade would mostly be over. It is no use to own a mine if there are no cars to carry the coal. Day after day the mines are obliged to close because there are no cars, or merely a small supply.

The shippers sit and wait and when a car that is to keep a customer from shutting down is finally started and it then is confiscated by the road the case seems about hopeless. Such is the situation here and it appears to be the case everywhere. Shippers go to Pittsburgh and bring back the same report of the situation there. Mines are running in this hand-to-mouth way mostly in the hope that something better will take place before long. And all the time things grow worse.

Shippers are saying that it is about time they took matters in their hands and at least put the Government out of control of the bituminous movement. One of them said this week that the report is of increased output, so the difficulty must be in the transportation. If that gets much worse the trade will go to smash. The report is general that cars are scarcer than they were in the worst of the war shortage and they are growing scarcer steadily. If the private ownership of the roads is to be assumed in full now the thing to do first of all is to see that cars are to be had.

There is another complaint against the roads. They are using the coal supply just as if it was their own private property. Sometimes they promise not to confiscate this or that shipment, as it covers an emergency case, but they seldom keep their promises, according to shippers, and they are accused of taking coal and turning it over to private concerns,, as for instance the Standard Oil Co., and occasionally of even stocking it. Whether such reports are authentic or not, the abuse is such that the shippers ought to keep up their opposition to all confiscation till the roads are made to buy coal as other consumers do and pay for it in the same way.

It is enough to drive a small shipper out of business, to rob him in this way of coal he has bought and pay him when one gets ready. As to prices, all that can be said is that some shippers are adhering to government figures: $4.70 for Allegheny Valley sizes, $4.50 for Pittsburgh and No. 8 lump and three-quarter, and $4.25 for all mine-run and slack, per net ton, f.o.b. Buffalo. Even some of the heavy operators say they cannot run long on these prices and will shut down if no relief is afforded before long.

Anthracite — The situation is pretty acute at present, for the cars have been so hard to get that the supply has not been up to the demand since the big storm of the middle of February and the local distributors and retailers are entirely unable to meet the requirements. Consumers have become alarmed, and though they know the winter is about over they are asking for coal in a way that makes it necessary to distribute it in one or two ton lots sometimes.

The arrival of warm sunny days now has been welcomed by the very shippers who used to dread the cancellation of orders that spring days brought on. It is not likely that the difficulty will last many days, for it is car shortage that is to blame for it all and it is now reported that empty cars are coming across the Niagara River from Canada at a good rate. It appears that they have just been dug out of the snow over in Canada and released.

Some anthracite consumers are trying

to buy coal against a possible labor stoppage on April 1, but they cannot get it now and possibly the scare will be over before coal is again plenty. It is next to impossible to buy independent coal now and the car movement is so light that it would not help in this emergency to do so. There is no talk of change of price now, as other difficulties seem to take up everybody's attention. Another week may see everything straightened out.

TORONTO

Shipments coming in slowly. Local deliveries much behind. Bituminous very scarce. Further shortage feared. Prices rise with rate of exchange.

Shipments of coal have been much delayed by car shortage and snow blockades and the supplies received are by no means equal to the demand. The yards are empty and the coal is being delivered from the cars.

Local deliveries are much hampered by labor shortage, partly due to the prevalence of influenza and other sickness. Bituminous is very scarce, and the demand for industrial purposes increases, plants having no stocks on hand as a rule and buying from hand to mouth.

Dealers are apprehensive that labor troubles in connection with the termination of the anthracite miners agreement on April 1 may lead to a serious curtailment of the supply.

Prices are advancing and fluctuating with the rate of exchange. Quotations for short tons are as follows:

Retail—	
Anthracite egg, stove, nut and grate	$13.50
Pea	12.00
Bituminous steam	11.00
Slack	9.00
Domestic lump	10.00
Cannel	13.00
Wholesale f.o.b. cars at destination—	
Three-quarter lump	9.00
Slack	8.00

CLEVELAND

Domestic demand has eased off considerably, but public schools and factories are being pinched harder than at any time this winter. Dealers' supplies have grown. Plenty of anthracite but little Pocahontas is being received.

Bituminous—Perhaps a score of plants in the Cleveland district have been forced to close an hour or two earlier in the evening and suspend Saturday operations altogether, while ten or twelve public schools have been closed for periods ranging from one to four days because of a shortage of coal. Warmer weather has greatly lessened domestic demand, but shipments from southern and eastern Ohio mines have decreased slightly, and the situation is tighter than at any time this winter.

Anthracite and Pocahontas—Receipts of Pocahontas are so small as to be practically negligible. Anthracite continues coming through in good shape, perhaps 70 per cent of normal for this period of the year. For the past few weeks demand for anthracite has been abnormal for this time of the year, but mild weather has cut heavily into the trade. Prices continue unchanged, with the bottom of the spread ruling.

Lake Trade—It now appears that heavy ice in Lake Erie harbors will be the chief obstacle to be overcome in opening the 1920 season. Some predictions say navigation will not be possible until late in April. Some starts have been made late in March, while mid-April is the usual date. Considerable lake coal has been placed, but so far as can be learned price has not yet been taken up.

DETROIT

Neither steam nor domestic sizes of bituminous are plentiful, while there is an active demand for each. Restoration of the railroads to private control has worked no miraculous change.

Bituminous—Wholesalers and jobbers are hopeful that improvement of the transportation facilities will be a development of the near future, when the railroads achieve a more efficient basis of operation. Meantime bituminous coal is coming into Detroit very slowly. As nearly all of the stock is sold before it leaves the mines, there is almost no free coal to be found on tracks. This shortage of supply has resulted in considerable inconvenience for manufacturing plants that were accustomed to rely on their ability to supply current needs by day to day purchases of coal on the tracks around town.

In a number of instances industrial plants have been obliged to make purchases from yards of local retailers to fill out intervals when no other supply was available. One of the results of this method of buying is a reduction in the amount of bituminous available for requirements of the household consumers, while the industrial plants are not materially benefited.

Successive snowstorms through the week have contributed in retarding railroad deliveries, while car shortage and shortage of locomotives on roads handling the coal continue to curtail shipments and prevent operation of the mines on anything like a capacity production. A recent survey conducted under the direction of the Detroit Board of Commerce disclosed that virtually all the manufacturing plants investigated are dependent on day-to-day receipts to continue in operation.

Anthracite—Household demand for anthracite has been maintained on an active scale by the long period of low temperature since Jan. 1. Though not much anthracite is being brought into the city, nearly all the retail yards have a small supply on hand.

Lake Trade—Vessel owners are inclined to the belief that it will depend on ability of the railroads to move lake coal, if shipments attain large volume early in the season. So far no coal is reported loaded for lake shipment, though at this time last season a number of cargoes were on shipboard awaiting navigation's opening.

Middle West

MIDWEST REVIEW

Very strong demand for all kinds and grades of coal. However, in spite of this, the coal market has a certain listless air, which to an outsider, is hard to understand.

Jobbers feel that there is but little inducement to them to do business on a 15c. retail market, and operators are still engaged on old orders, there being practically no tonnage of free coal offered. Purchasing agents from different parts of the Middle West continue to arrive in Chicago, in an attempt to place orders, and so far, they have been able to get better results from jobbers, than operators, as some jobbers have coal to offer which was purchased before Oct. 30, and which is still being shipped.

To date, this week, the car situation at Indiana and Illinois mines has been about the same, with little, if any, improvement. Operators are watching very closely to see what the private owners of the roads will do, now that the railroads are back under their control. It is expected, and hoped, that conditions will improve from now on.

Not much improvement is expected this week, nor will it be expected next week. Some improvement in the service from the railroads is, and can logically be hoped for, within the next thirty or sixty days. When the railroads went back to private ownership the morale of the railroad employees was at a very low ebb, but I understand the railroads are taking steps to revive the old spirit in their men.

CHICAGO

Chicago wholesalers and operators are planning to take steps against what is left of the U. S. Railroad and Fuel Administrations. Claim that in a great many cases their coal has been diverted without proper knowledge.

The center of complaint seems to be with a railroad official, at Cincinnati, who has been diverting coal destined to Chicago and this territory from mines in southeastern Kentucky, to a certain large steel company in Ohio. It is said Chicago wholesalers claim political influence has been brought to bear, and is responsible for these diversions. It is no exaggeration to say that the entire coal industry in the Middle West, as represented in Chicago, is sick and disgusted with the present administration.

ST. LOUIS

Car shortage continues in spite of change in railroad ownership. Railroads claim nearly all coal mined for company fuel. Winter weather prevailing.

Local situation is fairly good, everything considered, although there is a good demand for all kinds of coal, especially steam. The domestic demand has not not been very heavy and will not continue to be, but it will be an even demand for sometime to come.

Trouble in the Standard and Mt. Olive fields seems to be that the railroads are able to take the tonnage mined, leaving practically nothing for commercial shipments. The mines average about two days a week, some of them getting not more than a day and a half a week.

A better tonnage per man in this field is being produced with the passing away of the influenza epidemic. Prices are the same as last week.

MILWAUKEE

Coal in brisk demand, with an inadequate supply. Prices unchanged. An upward revision expected in the spring. Dealers claim coal has not kept pace with other necessities.

Anthracite coal is being doled out by the dock companies in small quantities in an effort to weather a period of extreme shortage. Even the soft-coal supply is threatened with stringency. Existing conditions in the coal market are attributed to congested freight service, unusually cold weather during the winter and decreased production at the mines.

Prices continue unchanged, but dealers agree that a rise is inevitable. A prediction was advanced that anthacite would command $15 per ton on April 1, but the president of the Dominant Dock Co. extends the assurance that there will be no undue change in the price list before the opening of lake navigation.

He says: "A change in prices is expected after the findings of the presidential commission investigation are made public. Coal will undoubtedly be higher next year. Return of the railroads to private ownership, higher freight rates, release of government restrictions on coal and lack of production at the mines, all tend to higher prices."

Coal dealers generally insist that coal has not kept pace with other necessities of life, which have jumped from 100 to 300 per cent, while coal has been restricted to 50 per cent.

CONNELLSVILLE

Coke production increases slowly, as attested by pig-iron production reports. Consumers lose interest in negotiations for second half coke.

Production of coke by the byproduct ovens continues to increase slowly, with occasional backsets, through there being somewhat heavier receipts of coal. After one week in which it fell behind the January and early February rate of output the Connellsville region has had a week showing the largest production for months.

During January and February there was loud complaint of coke shortage, and one would have inferred that the shortage was reducing the output of pig iron. Actual reports show, however, that pig iron was produced at 15 per cent greater rate in January than in December, that February showed a rate 6 per cent. above the January rate, and that the rate March 1 was slightly above the February average.

The present rate of pig-iron production in the United States is 85 or 90 per cent of capacity, depending upon whether capacity is estimated on a conservative or on a fairly liberal basis. Production of beehive and byproduct coke combined is much less than 85 per cent of capactity, hence it is clear that with adequate transportation and labor supplies there will be no difficulty in making all the coke that can be consumed.

There is less talk now about second-half contracts for Connellsville coke, after coke operators had referred to $8 to $10 as probable prices for furnace coke. Blast furnaces are finding their pig-iron market very sluggish, with possibilities of prices declining, and are quite indisposed to enter into negotiations for second-half coke at what they consider fancy prices in view of the new circumstances.

There is no Connellsville coke to be had in the open market, at least at Government limits, except off grades, which readily bring the full price. The market remains quotable at Government limits, which are likely to come off April 30: Furnace, $6; foundry, $7; crushed, over 2-in., $7.30, per net ton at ovens.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended Feb. 28 at 248,035 tons, an increase of 12,878 tons.

BUFFALO

Situation is unchanged. It was hoped that the ore rates would be made by this time, so that the season's operations would be under way somewhat, but the shippers have not done anything yet.

The rates of 1918 seem to be assured, though, in fact, the vessel owners would not accept less. Coal has been rather scarcer than ore and between the two the Rogers-Brown furnace at Tonowanda is reported shut down. It is the only one that has had to close here, though some others came very near it. Coke prices remain on the basis of $9.60 for 72-hr. Connellsville foundry, $8.60 for 48-hr. furnace, $7 for off grade, $7.75 for domestic sizes and $5 for breeze, all per net ton, f.o.b. Buffalo. A better condition is expected real soon after March 15.

CURRENT PRICES—MATERIALS & SUPPLIES

IRON AND STEEL

PIG IRON—Quotations compiled by the Matthew Addy Company:

	Current	One Month Ago
CINCINNATI		
No. 2 Southern	$44.60	$44.60
Northern Basic	42.80	42.80
Southern Ohio No. 2	43.80	43.80
NEW YORK, Tidewater delivery		
2X Virginia (silicon 2.25 to 2.75)	47.65	47.65
Southern No. 2 (silicon 2.25 to 2.75)	47.70	47.70
BIRMINGHAM		
No. 2 Foundry	41.00	41.00
PHILADELPHIA		
Eastern Pa., No. 2 x 2.25-2.75 sil.	45.35-46.35*	45.35-46.35*
Virginia No. 2	43.25*	43.25*
Basic	43.00†	43.00†
Grey Forge	42.50*	42.50*
CHICAGO		
No. 2 Foundry Local	43.25	43.25
No. 2 Foundry Southern	46.60	46.60
PITTSBURGH, including freight charge from the Valley		
No. 2 Foundry Valley	43.65	43.65
Basic	42.90	42.90
Bessemer	43.40	43.40
MONTREAL		
Silicon 2.25 to 2.25%	43.25	43.25

* F. o. b. furnace. † Delivered.

STRUCTURAL MATERIAL—The following are the base prices, f.o.b. mill, Pittsburgh, together with the quotations per 100 lb. from warehouses at the places named:

	Mill Pittsburgh	New York Current	New York One Year Ago	St. Louis	Chicago
Beams, 3 to 15 in.	$2.45	$3.97	$4.07	$4.04	$3.97
Channels, 3 to 15 in.	2.45	3.97	4.07	4.04	3.97
Angles, 3 to 6 in., ¼ in. thick.	2.45	3.97	4.07	4.04	3.97
Tees, 3 in. and larger	2.45	4.02	4.12	4.04	4.02
Plates	2.65	4.17	4.27	4.24	4.17

BAR IRON—Prices in cents per pound at cities named are as follows:

Pittsburgh	Cincinnati	St. Louis	Birmingham
4.00	3.50	3.44	4.25

NAILS—Prices per keg from warehouse in cities named:

	Mill Pittsburgh	St. Louis	Chicago	Birmingham	San Francisco	Dallas
Wire	$4.50	$4.50	$4.15	$5.75	$5.50	$6.90
Cut	4.925	5.40	7.00	....	6.90	7.40

TRACK SUPPLIES—The following prices are base per 100 lb. f.o.b. Pittsburgh for carload lots, together with the warehouse prices at the places named:

	Pittsburgh	Chicago	St. Louis	San Francisco	Birmingham
Standard railroad spikes ⅝-in. and larger	$3.35	$3.62	$4.44	$5.65	$4.75
Track bolts	4.90-5.00	4.62	Prem.	6.65	7.00
Standard section angle bars	2.75	2.75	3.44	4.60	....

COLD FINISHED STEEL—Warehouse prices are as follows:

	New York	Chicago	Cleveland	St. Louis
Round shafting or screw stock, per 100 lb. base	$5.50	$5.40	$5.50	$5.00
Flats, squares and hexagons, per 100 lb. base	6.00	5.90	5.50-6.00	5.50

HORSE AND MULE SHOES—Warehouse prices per 100 lb. in cities named:

	Mill Pittsburgh	Cincinnati	Chicago	St. Louis	Birmingham
Straight	$5.75	$7.50	$7.00	$7.25	$7.00
Assorted	5.85	7.50	7.15	7.50	7.25

Cincinnati—Horseshoe nails sell for $4.50 to $5 per 25-lb. box.

CAST-IRON PIPE—The following are prices per net ton for carload lots:

	New York Current	New York One Month Ago	New York One Year Ago	Chicago	St. Louis	San Francisco	Dallas
4 in.	$70.30	$70.30	$65.70	$75.80	$71.00	$92.55	$70.30
6 in. and over	67.30	67.30	62.70	72.80	68.00	89.55	67.30

Gas pipe and 16-ft. lengths are $1 per ton extra.

STEEL RAILS—The following quotations are per ton f.o.b. Pittsburgh and Chicago for carload or larger lots. For less than carload lots 5c. per 100 lb. is charged extra:

	Pittsburgh Current	Pittsburgh One Year Ago	Chicago Current	Chicago One Year Ago
Standard Bessemer rails	$45.00	$55.00	$45.00	$65.00
Standard openhearth rails	47.00	57.00	47.00	67.00
Light rails, 8 to 10 lb.	2.585*	3.135*	2.585*	3.135*
Light rails, 12 to 14 lb.	2.54*	3.09*	2.54*	3.09*
Light rails, 25 to 45 lb.	2.45*	3.00*	2.45*	3.00*

* Per 100 lb.

OLD MATERIAL—The prices following are per gross ton paid to dealers and producers in New York. In Chicago and St. Louis the quotations are per net ton and cover delivery at the buyer's works, including freight transfer charges:

	New York	Chicago	St. Louis
No. 1 railroad wrought	$28.00	$26.00	$28.50
Stove plate	25.00	31.00	34.00
No. 1 machinery cast	32.00	38.75	39.00
Machine shop turnings	15.00	13.85	16.50
Cast borings	18.00	14.25	16.50
Railroad malleable cast	25.00	30.00	28.50
Rerolling rails	33.00	32.00	32.50
Relaying rails	50.00	40.00-50.00	45.00-50.00

COAL BIT STEEL—Warehouse price per pound is as follows:

New York	Cincinnati	Birmingham	St. Louis	Chicago
$0.10	$0.16½	$0.18	$0.11	$0.15

DRILL STEEL—Warehouse price per pound:

	New York	St. Louis	Birmingham
Solid	14c.	13c.	15c.
Hollow	16c.	....	....

PIPE—The following discounts are to jobbers for carload lots on the Pittsburgh basing card, discounts on steel pipe, applying as from January 14, 1920, and on iron pipe from January 7, 1920:

Steel Inches	Steel Black	Steel Galv.	Iron Inches	Iron Black	Iron Galv
BUTT WELD					
⅛, ¼ and ⅜	47	20½	¼ to 1½	34½	18½
½	51	36½			
¾ to 3	54	41½			
LAP WELD					
2	47	34½	2	28½	14½
2½ to 6	50	37½	2½ to 6	30½	17½
BUTT WELD, EXTRA STRONG PLAIN ENDS					
⅛, ¼ and ⅜	43	25½	¼ to 1½	34½	19½
½	48	35½			
¾ to 1½	52	39½			
LAP WELD, EXTRA STRONG PLAIN ENDS					
2	45	33½	2	29½	16½
2½ to 4	48	36½	2½ to 4	31½	19½
4½ to 6	47	35½	4½ to 6	30½	18½

Stocks discounts in cities named are as follows:

	New York Black	New York Galvanized	Cleveland Black	Cleveland Galvanized	Chicago Black	Chicago Galvanized
¼ to 3 in. steel butt welded	40%	24%	40%	31%	54%	40½%
3½ to 3 in. steel lap welded	35%	20%	42%	27%	50%	37½%

Malleable fittings. Class B and C, from New York stock sell at list + 23%. Cast iron, standard sizes, net.

WIRE ROPE—Discounts from list price on regular grades of bright and galvanized are as follows:

	New York and St. Louis
Hercules red stand, all constructions	20%
Patent flattened strand, special and cast steel	20%
Patent flattened strand, iron rope	5%
Plow steel round strand rope	35%
Special steel round strand rope	30%-10% and 5%
Cast steel round strand rope	22½%
Iron strand and iron tiller	5%
Galvanized iron rigging and guy rope	+12%

San Francisco: Galvanized, less 5%, bright less 25%.
Chicago, +12½ on galvanized, 30 off on bright.

STEEL SHEETS—The following are the prices in cents per pound from jobbers' warehouse at the cities named:

Blue Annealed	Large Mill Lots Pittsburgh	New York Current	New York One Year Ago	Cleveland	Chicago
No. 10	3.55-4.00	5.57-6.80	5.17	5.35	5.27
No. 12	3.60-4.05	5.62-6.85	5.22	5.40	5.32
No. 14	3.65-4.10	5.67-6.90	5.27	5.45	5.37
No. 16	3.75-4.20	5.77-7.00	5.37	5.55	5.47
Black					
Nos. 18 and 20	4.15-4.80	6.80-7.30	6.02	5.95	6.30
Nos. 22 and 24	4.20-4.85	6.85-7.35	6.07	6.00	6.35
No. 26	4.25-4.90	6.90-7.90	6.12	6.05	6.40
No. 28	4.35-5.00	7.00-8.00	6.22	6.15	6.50
Galvanized					
No. 10	4.70-6.00	7.50-9.00	8.22	5.05	6.65
No. 12	4.80-6.10	7.60-9.10	8.27	5.10	6.70
No. 14	4.80-6.10	7.60-9.10	8.42	5.25	6.85
Nos. 18 and 20	5.10-6.40	7.90-9.40	8.72	5.55	7.15
Nos. 22 and 24	5.25-6.55	8.05-9.55	7.12	6.95	7.55
No. 26	5.40-6.70	8.20-9.70	7.27	7.40	7.70
No. 28	5.70-7.00	8.50-10.00	7.57	7.50	8.00

SHOP SUPPLIES

NUTS—From warehouse at the places named, on fair size orders, the following amount is deducted from list:

	New York Current	Cleveland Current	Cleveland One Year Ago	Chicago Current	Chicago One Year Ago	St. Louis Current
Hot pressed square	+$2.00	$1.00	$1.25	$1.45	$0.98	$2.25
Hot pressed hexagon	+ 2.00	1.00	1.05	1.45	0.78	2.25
Cold punched square	+ 2.00	1.00	.75	1.05	1.00	2.25
Cold punched hexagon	+ 2.00	1.00	.75	1.05	1.00	2.25

Semi-finished nuts, $\frac{7}{8}$ and smaller, sell at the following discounts from list price:

	Current	One Year Ago
New York	60%	50–10%
Chicago	50%	50%
Cleveland	60–10%	50–10%
St. Louis	45%	....

MACHINE BOLTS—Warehouse discounts in the following cities:

	New York	Cleveland	Chicago	St. Louis
½ by 4 in. and smaller	25%	50%	35–5%	50–5%
Larger and longer up to 1 in. by 30 in.	15%	40%	25–5%	40–5%

WASHERS—From warehouses at the places named the following amount is deducted from list price:

For wrought-iron washers:
New York.....$1.50 Cleveland.....$4.50 Chicago.....$3.00

For cast-iron washers the base price per 100 lb. is as follows:
New York.....$7.00 Cleveland.....$3.75 Chicago.....$4.25

RIVETS—The following quotations are allowed for fair sized orders from warehouse:

	New York	Cleveland	Chicago
Steel $\frac{7}{8}$ and smaller	30%	55% off	45%
Tinned	30%	55% off	45%

Boiler, ½, ⅝, 1 in. diameter by 2 in. to 5 in. sell as follows per 100 lb.:
New York..$6.00 base Cleveland..$4.00 Chicago..$4.97 Pittsburgh..$4.72

Structural, same sizes:
New York..$6.10 Cleveland..$4.10 Chicago..$5.07 Pittsburgh..$4.82

CONSTRUCTION MATERIALS

LINSEED OIL—These prices are per gallon:

	New York Current	New York One Year Ago	Cleveland Current	Cleveland One Year Ago	Chicago Current	Chicago One Year Ago
Raw, 5-bbl. lots	$1.80	$1.49	$2.05	$2.10	$1.93	$1.66
5-gal. cans	2.00	1.74	2.25	2.25	2.23	1.86

WHITE AND RED LEAD—Base price.

	Red Current Dry	Red Current In Oil	Red 1 Year Ago Dry	Red 1 Year Ago In Oil	White Current Dry and In Oil	White 1 Year Ago Dry and In Oil
100-lb. keg	15.00	16.50	13.00	14.50	15.00	13.00
25 and 50-lb. kegs	15.25	16.75	13.25	14.75	15.25	13.25
12½-lb. keg	15.50	17.00	13.50	15.00	15.50	15.50
5-lb. cans	17.00	18.50	.....	.....	17.00	15.00
1-lb. cans	18.00	19.50	.....	.....	18.00	16.00

500 lb. lots less 10% discount. 2000 lb. lots less 10–2½% discount.

COMMON BRICK—The prices per 1000 in cargo or carload lots are as follows:

Chicago	$14.00	Cincinnati	$19.00
St. Louis, salmon	14.00	Birmingham	15.00

PREPARED ROOFINGS—Standard grade rubbered surface, complete with nails and cement, costs per square as follows in New York, St. Louis, Chicago and San Francisco.

	1-Ply C.l.	1-Ply L.c.l.	2-Ply C.l.	2-Ply L.c.l.	3-Ply C.l.	3-Ply L.c.l.
No. 1 grade	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25
No. 2 grade	1.70	1.95	2.15	2.40	2.50	2.75

Asbestos asphalt saturated felt (14 lb. per square) costs $17.00 per 100 lb.
Slate-surfaced roofing (red and green) in rolls of 108 sq.ft. costs $3.00 per roll in carload lots and $3.25 for smaller quantities.
Shingles, red and green slate finish, cost $7.25 per square in carloads, $7.50 in smaller quantities, in Philadelphia.

ROOFING MATERIAL—Prices per ton f. o. b. New York and Chicago:

	Carload Lots N. Y.	Carload Lots Chicago	Less Than Carload Lots N. Y.	Less Than Carload Lots Chicago
Tar felt (14 lb. per square of 100 sq.ft.)	$84.00	$82.00	$86.00	$84.00
Tar pitch (in 400-lb. bbl.)	21.00	18.00	22.00	19.00
Asphalt pitch (in barrels)	34.00	34.00	37.50	37.50
Asphalt felt	88.00	88.00	90.00	90.00

HOLLOW TILE—Price per block in carload lots for hollow building tile:

	4x12x12	8x12x12	12x12x12
St. Paul	$0.087	$0.158	$0.248
St. Louis	.12	.23	.31
Seattle	.09	.175	.30
Los Angeles*	.082	.154	.236
New Orleans	.165	.22	.325
Pittsburgh	.065	.115	.....
Chicago	.1062	.199	.....
Cincinnati	.101	.18925	.2864
Birmingham	.108	.192	.....

*F. o. b. factory, 4, 8 and 10 inch.

LUMBER—Price of pine per M in carload lots:

	1-In. Rough 10 In. x 16 Ft.	2-In. T. and G. 10 In. x 16 Ft.	8 x 8 In. x 20 Ft.
St. Louis	$53.00	$46.00	$42.00
Birmingham	52.00	53.00	50.00
Cincinnati	60.00	60.00	55.00

EXPLOSIVES—Price per pound of dynamite in small lots and price per 25-lb. keg for black powder:

	Low Freezing 20%	Gelatin 40%	Gelatin 60%	Gelatin 80%	Black Powder
New York	.....	$0.27	$0.30	.....	$2.20
Boston	$0.225	.245	.25	$0.35	2.40
Kansas City	.185	.2275	.2525	.29	2.35
New Orleans	.2375 (50%)	.2275	.2475	.....	.....
Seattle	.1675	.1925	.2125	.2775	2.25
Chicago	.215	.24	.2825	.325	2.25
St. Paul	.185	.2275	.2525	.....	2.25
St. Louis	.185	.2275	.2325	.295	1.80
Los Angeles	.25	.30	.35	.275	2.95

MISCELLANEOUS

GREASES—Prices are as follows in the following cities in cents per pound for barrel lots:

	Cincinnati	St. Louis	Birmingham
Cup	7–8	3.7–3.8	8.5
Fiber or sponge	7	7.2	8.5
Transmission	9–10	14.	8.5
Axle	5	5.	4.5
Gear	5	6.5	8.5
Car journal	5	4.7	8.5

BABBITT METAL—Warehouse prices in cents per pound:

	New York Current	New York One Year Ago	Cleveland Current	Cleveland One Year Ago	Chicago Current	Chicago One Year Ago
Best grade	90.00	87.00	70.00	80.00	70.00	75.00
Commercial	50.00	42.00	20.00	21.50	15.00	15.00

HOSE—Following are prices of various classes of hose:

Fire
Underwriters' 2½-in. 50-Ft. Lengths
Common, 2½-in. 75c. per ft.
40%

Air

	First Grade	Second Grade	Third Grade
¾-in. per ft.	$0.50	$0.33	$0.22

Steam—Discounts from list

First grade	30%	Second grade	40%	Third grade	45%	

LEATHER BELTING—Present discounts from list in cities named:

	Medium Grade	Heavy Grade
New York	20%	25%
St. Louis	30%	35%
Birmingham	35%	15%
Chicago	45%	40%
Cincinnati	30–5 2½%	40–2½%

RAWHIDE LACING—25% for cut; 86c. per sq.ft. for ordinary.

PACKING—Prices per pound:

Rubber and duck for low-pressure steam	$1.00
Asbestos for high-pressure steam	1.70
Duck and rubber for piston packing	1.00
Flax, regular	1.20
Flax, waterproofed	1.70
Compressed asbestos sheet	.90
Wire insertion asbestos sheet	1.50
Rubber sheet	.50
Rubber sheet, wire insertion	.70
Rubber sheet, duck insertion	.50
Rubber sheet, cloth insertion	.30
Asbestos packing, twisted or braided, and graphited, for valve stems and stuffing boxes	1.30
Asbestos wick, ½- and 1-lb. balls	.85

MANILA ROPE—For rope smaller than ¾-in. the price is ½ to 2c. extra: while for quantities amounting to less than 600 ft. there is an extra charge of 1c. The number of feet per pound for the various sizes is as follows: ⅜-in., 8 ft.; ½-in., 6; ⅝-in., 4½; 1 in., 3⅓; 1¼-in., 2 ft. 10 in.; 1½-in., 2 ft. 4 in. Following is price per pound for ¾-in. and larger, in 1200-ft. coils:

Boston	$0.30	Birmingham	$0.29
New York	.26	Atlanta	.295
St. Louis	.265	Kansas City	.265
Chicago	.265	New Orleans	.255
St. Paul	.275	Seattle	.25
San Francisco	.24	Los Angeles	.285

PIPE AND BOILER COVERING—Below are discounts and part of standard lists:

PIPE COVERING Pipe Size	Standard List Per Lin.Ft.	BLOCKS AND SHEETS Thickness	Price per Sq.Ft.
1-in.	$0.27	½-in.	$0.27
2-in.	.36	1-in.	.30
3-in.	.45	1½-in.	.45
4-in.	.60	2-in.	.60
6-in.	.80	2½-in.	.75
8-in.	1.10	3-in.	.90
10-in.	1.30	3½-in.	1.05
85% magnesia high pressure			List
For low-pressure heating and return lines		4-ply	58% off
		3-ply	60% off
		2-ply	62% off

WIRING SUPPLIES—New York prices for tape and solder are as follows:

Friction tape, ⅙-lb. rolls	55c. per lb.
Rubber tape, ⅙-lb. rolls	60c. per lb.
Wire solder, 50-lb. spools	46c. per lb.
Soldering paste, 2-oz. cans	$1.20 per doz.

COPPER WIRE—Prices per 1000 ft. for rubber-covered wire in following cities:

	New York Single Braid, Solid	New York Double Braid, Stranded	New York Duplex	Birmingham Single Braid, Solid	Birmingham Double Braid, Stranded	Birmingham Dup'ex
14	$12.00	$13.90	$28.50	$12.50	19.50	$29.00
10	18.30	23.85	41.50	25.10	35.50	55.50
8	25.54	32.70	56.70	34.75	49.50	70.50
6	.....	51.40	.....	57.50	68.60	.....
4	.....	70.00	.....	81.65	95.50	.....
2	.....	101.80	.....	.....	140.20	.....
1	.....	131.86	.....	.....	190.90	.....
0	.....	160.00	.....	.....	231.33	.....
00	.....	193.50	.....	.....	281.23	.....
000	.....	235.20	.....	.....	343.22	.....
0000	.....	288.60	.....	.....	416.80	.....

Cincinnati—12c. base.

FREIGHT RATES—On finished steel products in the Pittsburgh district including plates, structural shapes, merchant steel, bars, pipe fittings, plain and galvanized wire nails, rivets, spikes, bolts, flat sheets (except planished), chains, etc. the following freight rates per 1000 lb. are effective:

Boston	$0.30	New Orleans	$0.385
Buffalo	.17	New York	.27
Chicago	.27	Philadelphia	.245
Cincinnati	.23	St. Louis	.24
Cleveland	.17	St. Paul	.495
Kansas City	.59	Pacific Coast (all rail)	1.25*

Note—Add 3% transportation tax. *Minimum carload, 80,000 lb.